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SILENT HOMAGE — FANNIE T. CASSIDY

PHOTO-ERA

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Getting Meaning in a Picture

In Three Parts — Part II

C. H. CLAUDY

AS far as I know, there are but two broad paths which the artist who uses photography as his medium can tread, in his travel towards the goal which shall be a picture made of intention and purpose.

These are:

(1) Conceiving an idea for a picture, and by manipulation of subject, camera, view-point, light and shade, exposure and stop, producing a negative which will give a print that embodies the idea which was the mainspring of the whole performance.

(2) Having an idea, whether conceived in advance of the making of a negative or suggested by a negative after making, producing a result embodying that idea by retouching, juggling the negative, faking, double-printing, multiple-exposure of print, or other technical process upon photographic material in hand, rather than upon the subject or with the camera.

That the one is as legitimate as the other has been a mooted point for sometimes acrimonious discussion ever since the first camerist contended with the artists of pen and brush for recognition. The so-called photographic purist who admits no retouching, and objects to any jockeying with the negative, in the humble opinion of the writer, has not a leg to stand on — yet stand he does, and, in some quarters, very solidly! — perhaps upon wraithlike legs of tradition and prejudice! However that may be, the present scribe has never seen what appeared to him as a rational argument why an artist must be debarred from any technical operation with his tools, or why he should stop short of anything which will yield the result he wishes. No one quarrels with the artist with canvas and tubes of paint, whether he lay it on with palette-knife, brush or his own two thumbs. The best method is for him to select.

Of the sculptor we inquire only if his modeling is true, his conception beautiful, his finished statue appealing — never if he used a chisel, a saw, his fingers or a knitting-needle in moulding the clay!

"What has he done?" inquired Napoleon, and, "What has he done?" echoes the public and the true critic of a picture — never, "How has he done this thing?"

Therefore, criticisms of the artist who uses a stump upon his negative, makes three contact-positives, three enlarged negatives, and prints through a ground-glass with tufts of cotton representing clouds, upon multiple-gum, which he draws upon with pigment and brush afterwards, seem scarcely fair. The brush-artist presents a painting, and no one questions whether it was all done with a *brush*. Why should not the photographic artist present a photograph without question as to whether it was *all* done with lens, plate and developer?

That the first method mentioned of really getting meaning in a picture is the most difficult, few who have tried both methods will dispute. Obviously, it is far easier to describe a lady's eyes in plain prose than in a sonnet; yet the maker of good sonnets is lauded as clever not only with his words but with his brains. Similarly, the purely photographic picture — and by purely photographic is meant without the use of those hours of hand-work afterwards — is perhaps more worthy of praise as the successful fruition of a difficult undertaking than is as good a picture made piecemeal — part in the studio and part in the laboratory. But that the one result can command any more admiration than the other, both being equally good, is not logical.

Therefore, one comes squarely against the question — Do we try to make pictures by photographic means for the sake of accomplishing a task, or to get the result? And if we answer the latter, then it is equally obvious that any method

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which will bring about that result is a legitimate method, and should be considered.

Let us turn to the snapshot-artist and his sunset. In the first paper, some unmeasured words were flung at this wayward person for his insincerity in trying to read into his hurried photograph, *via* a title, a meaning it did not possess. Now, let him take his title before he takes his camera, and work forward from it, and not backwards to it. Let him begin with a conception — perhaps a picture he visualizes mentally as "The Coming of Night." Let him first put that conception into words, as nearly as he can. Perhaps, to him, Night is as positive an entity as the Day — not a mere absence of light. As Day, dying with the sun, and sinking to rest in the arms of the cloud-forms in the west, shrinks away from the earth, Night, a beneficent spirit (to this mythical photographer), rises from the east, her shadowy arms reaching wide to encompass the landscapes. The shadows on the grass are faint and worn, as the sun loses its power, the trees are still with the dropping of the breeze that dies before the sun, and the motionless landscape seems to wait, dropping, unexpectant, for the embrace of that shadowy curtain which will so soon envelop the world in darkness.

Not being a poet, nor much given to poetic creations, the present scribe finds it somewhat difficult to mouth, even for a mythical character, a conception which forms the basis of a pictorial photograph. But, leaving beside the question all faults in the above paragraph as a word-picture, would it not be a task from which an artist would gain much satisfaction, to produce in monochrome a picture which *should repeat that conception, in thought though not in words, to the beholder?*

It would not be an easy task. First, there would be the particular landscape to find — first mentally, then in actual fact. At least, that is the way a brush-artist would do it. Conceding something to the photographer's difficulty, he might well search for a suitable landscape, to be — as it might be called — the frame of his picture. Were the writer doing it, it would have to be a wide, open plain with a river in the middle distance and a bare tree or two. Why? Because that is the way the mental picture called up by his own words takes form, and to attempt to photograph anything else against such a conception and mental picture would be to violate the very principles for which this story stands, viz., the following out in practice of a conception made *before* practice begins, rather than fitting onto successful practice a conception evoked by that practice. This should be easily understood.

However, the mythical sunset-seeker has found his landscape — whether it be hills and forest, or plain and a river, or trees and a church-steeple, matters not one whit, so it fits his mental conception. Then he goes to work, evening after evening, with camera and lens, making studies. Alas, that the overworked word has been seized upon by the luckless near-artist as a label for his abortive efforts. To the painter, a "study" is a bit of practice-work, a fleeting note of a single phrase of the picture he would some day paint. That some of them are in themselves beautiful, is no matter of wonder. The scraps of paper on which Beethoven and Wagner made their musical notes contain gems of musical thought, but no one has dared put them forth as more than what they are. But, too often, the photographer, using the word as an excuse for what he has not accomplished, pitches it headlong at anything, landscape or portrait, and sits back smug with satisfaction, for — "Is it not what painters do?"

A study is a study, and nothing else. Our mythical friend makes real studies of his landscape, with various and sundry sunsets. He develops each plate as carefully, makes each print as lovingly, as if it were the finished picture. In this the sunset is too vivid — in that, too dull. Here the shadows are too brilliantly sharp — in this they are not existent at all. Probably there are regrets — *if* the clouds of this one had only been in that one with the strange glow along the horizon, but — and so on. If accurate data are kept, there comes a time when the photographic artist no longer hopes and thinks, but *knows* just where he is. He need no longer make exposures when conditions are not just right — he knows from previous experience when they are. Experiment and trial have shown him that composition, standpoint, focus and stop are right — that all he needs now is the right combination of sky and light and hour and God-given grace to see. And some day — it may be a week, a month or a year after he started — the occasion comes, the single negative is made which embodies *all* that has been learned in many patient hours, and his original conception lies before him in a single, simple print.

Is there any comparison between the man who works this way, painfully, toilfully, perhaps prayerfully and earnestly, and him who snaps a sunset and calls it "Coming of Night," in the hope that he will strike a responsive chord somewhere?

It may well be that the day never does come when the one negative can be made which embodies in all perfection the conception as existing in the minds of the artist photographer. He then has recourse to the second method. In one nega-

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GETTING READY FOR BUSINESS — CHESTER GRILLO

tive is his landscape, in another his sunset, perhaps in a third a crescent moon which may belong to his idea. Patience and technical skill can make one negative from the three. Finger-magic and a proper use of stumps, ground-glass and the art of the printing-room can get from the combined negative a print which possesses all that the negative did not, and this time, in paper alone, there comes forth the fruition of desire, the full flower of patient work.

Is there comparison between *this* and the haphazard snapshot, beautiful though it may be, titled in a moment of exaltation over its sensuous appeal? Hardly.

Of course, there need be no argument concerning the difficulty of this way of making a picture, this method of getting meaning into a composition. It is hard. It is laborious. It is not much fun. It is no primrose-path of luxury. It costs time and money, and plates and paper, and patience without end. But when it is done and there is a real result, there is no satisfaction equal to it, not in a hundred handsome photographs, casual and incidental; no, not if they have titles chosen for them with the skill of a Kipling!

The writer who sat him down to spread a story across the page, and wrote but words and titled it afterwards as seemed to him best, would never get in print. The artist who painted a fancy head, stuck a baby in somewhere and called it Madonna, would never get his picture hung. The musician who scrawled notes upon the staff as his fancy dictated and called it "Song of the Storm," would get little but laughter. Why, then, should we of lens and plate hope to escape oblivion if we try to escape the labor of art, merely because science has laid in our hands a perfect technique?

Scientific Development

GASTON M. ALVES

DEVELOPMENT TABLE

	61⅔	62⅓	63	63⅔	64⅓	(65)	65⅔	66⅓	67	67⅔	68⅓
MEAN TEMPERATURE SOLUTION											
10 Mins.	12½	12	11½	11	10½	(10)	9½	9	8½	8½	8
15 Mins.	19	18	17	16½	15½	(15)	14½	13½	13	12½	12
20 Mins.	25	24	23	22	21	(20)	19	18	17½	16½	16
INITIAL TEMPERATURE SOLUTION											
Temp. Room											
50, 51,	67	68	69	70	71	(72)	73	74	75	76	77
52, 53,	66	67	68	69	70	(71)	72	73	74	75	76
54, 55,	65	66	67	68	69	(70)	71	72	73	74	75
56, 57,	64	65	66	67	68	(69)	70	71	72	73	74
58, 59,	63	64	65	66	67	(68)	69	70	71	72	73
60, 61,	62	63	64	65	66	(67)	68	69	70	71	72
62, 63,	61	62	63	64	65	(66)	67	68	69	70	71
64, 65,	60	61	62	63	64	(65)	66	67	68	69	70
66, 67,	59	60	61	62	63	(64)	65	66	67	68	69
68, 69,	58	59	60	61	62	(63)	64	65	66	67	68
70, 71,	57	58	59	60	61	(62)	63	64	65	66	67
72, 73,	56	57	58	59	60	(61)	62	63	64	65	66
74, 75,	55	56	57	58	59	(60)	61	62	63	64	65
76, 77,	54	55	56	57	58	(59)	60	61	62	63	64
78, 79,	53	54	55	56	57	(58)	59	60	61	62	63
80, 81.	52	53	54	55	56	(57)	58	59	60	61	62

THE employment of the above table is as easy as its results are reliable. In fact, the method offered is not only scientific, but it is one than which none is more simple in application. The first line, the "mean temperature solution," need not be considered by the practical worker. But he will be concerned with all of the other values of the table. Following the first line are the time-tables, for 10-minute, 15-minute, and 20-minute scales. The main body of the table constitutes the "initial temperatures" of the solution. The extreme left column of the table constitutes a list of the "room temperatures."

It is assumed that the developing-mixtures, and the rank or developing-vessel, are kept near together in the darkroom, and that a thermometer hangs near them — so that they all will have a "room" temperature.

To develop, we enter the darkroom and note the "room" temperature as recorded by the thermometer. We then place our exposed plates in the tank and cover it. Next we find the position of our "room" temperature in the left-hand column of our table. From this position, and in a direct line to the right, we proceed to the central or bracketed column, where we find the proper temperature to make our developing-solution. This done, we pour the solution over the plates in the tank, and develop them for the 10, 15 or 20 minutes — depending on whichever scale we use. The correct time is found at the head of the bracketed column. But in making up our developing-solution, it is not likely — nor is it necessary — that we should hit exactly the particular bracketed temperature, as the table allows liberal latitude. An effort to approach the bracketed temperature is advisable, then, whatever it may be, in the *same line*, right or left, we find this temperature and proceed up *that* column for our time of development.

All of the foregoing should be clear, but it may be well to give an example:

Suppose we are using the ten-minute scale; suppose we find the temperature of our darkroom to be, say, 72; we find 72 in the left-hand, or "room" temperature, column of our table, and proceed from thence in a direct line to the right

THE TOP OF THE HILL — LYSANDER E. WRIGHT

until we reach the central or bracketed column, and there find 61 as the proper temperature of our solution. If, in the make-up of our solution, we happen to hit this 61, we then ascend the same bracketed column, and find that 10 minutes is required for the development. But suppose that, after we have made up our solution, we find its temperature to be, say, 58. Then, passing in the same line to the left, we find 58, and ascend *that* column and find our time to be 11½ minutes for development. Suppose, again, that we had made our solution at a temperature of 63, then we will find our time of development to be 9 minutes.

Now, it is necessary here to consider another matter. In proper development there should always be at least occasional motion of the solution over the plates. But this affects the time of the development; therefore, always make this motion the same, in order to maintain uniform time. You may get this by inverting your tank, lifting the cage or rocking the vessel; but always do it to the same extent in all of your developments.

How strong to make your developing-solution so as to have a 10- a 15- or a 20-minute scale, you must ascertain by experiment. Chemicals vary, and you must make your own tests with those you are using. This is by no means a difficult thing to do. Whenever you develop a negative, you make a test and an experiment, providing you preserve the data.

All of the foregoing applies to ordinary photography and for usual scenes and subjects. In an exposure of a distant water-scene with delicate clouds above, you will find that full-time development may "plug-up" your negative. You will find probably that about half-time development will be right. Also, for delicacy, you will find that for heads of women and children about three-fourth time development will give you more pleasing results.

In all of your applications of the table and its methods, be sure to adhere to the directions. Especially, do not tamper with the "room" temperature of your tank or developing-vessel. Pour the developing-solution into it just as it is and — before using it — do not, in any way, attempt to bring it to the temperature of your solution, as the table takes care of differences of temperature. Also, in your trial-tests for time, bear in mind that your negative is not the final

SCARBOROUGH BRIDGE
C. E. DODGE

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test; but rather the print you obtain from the negative. Often a negative appears to be good but the print it yields does not give realistic contrasts. To repeat: judge whether you have found the proper time-scale by the prints, and whether the contrasts are real and true to the subject.

DISCUSSION

The general worker will not be interested in what follows — he wants simply results, and cares little for the principles. If he carries out the foregoing instructions, he will get his results. But the student — he who is among those who make the authority in any pursuit — will always demand an exposé of the principles. It is for him that this discussion is given.

When a developing-solution of different temperature from the room is poured into a developing-tank of the same temperature as the room, the temperature of the solution immediately begins to change towards that of the room. It is not necessary to our purpose to attempt to uncover the natural law which measures the progress of this change; but it is proper here to point out that the change is not gradual in an arithmetic but in a geometric sense. The mathematician could not deal with it in any equation of a right line; he would have to employ an equation of a curve, i.e., its own peculiar curve. It is sufficient here to point out the fact that at first the change takes place rapidly, and then continues at a gradually decreasing rate — being exceedingly slow in its last stages. It is found by experimentation that within the limits of 10 to 20 minutes the temperature taken at about $7\frac{1}{2}$ minutes will represent — for all practical purposes — the mean or average temperature. This result is made use of in this investigation.

We will call the temperature of the solution in the retainer, when ready for use, the initiative temperature, and the average or effective temperature, the mean temperature.

Let A represent the initiative temperature;
B, the mean temperature;
C, the room temperature.

Now adequately repeated experiments furnish the following equation:

$$(1) \ldots . \quad B = \frac{2A + C}{3}$$

From which we derive,

$$(2) \ldots . \quad A = \frac{3B - C}{2}$$

And,

$$(3) \ldots . \quad A = 1\tfrac{1}{2}\, B$$

In the construction of the table, convenient and numerically consecutive values of A are placed in its body. Then, by means of equation 1, the corresponding values of B are placed in the top line. The problem now remains to construct the time-scales:

It is evident that what directly affects the development are the values of B. But a little reflection will show us how difficult it would be by experimentation to obtain a scale of these values. We would either have to employ a cycle of the seasons — and then be sure that our chemicals remain the same during that time — or make use of a method of steady temperature-control, equal to that of a storage-plant.

However, the values of A can readily be gotten by experiment; and it is found by such that the values of A vary so, that within the usual developing-temperatures a difference of 15 degrees will just about double or halve — depending on whether we descend or ascend — the time of the development. But equation 3 shows the relation of B to A is as 2 to 3. Consequently, in terms of B, 10 degrees of difference will double or halve. But, again, our values of B in the table are seen to vary not by one degree, but by two-thirds of a degree. Hence, to connect these two-thirds degree points of contact, we find that the chain for doubling or halving must contain 15 of these two-third degree links. The problem remains to trace the curve, or find values for these 15 links.

The mathematician will see that if we place the normal time at the agreed 65 degrees, then take the logarithm of this normal time, and successively add to it one-fifteenth of the logarithm of the number 2 as far up one side of the curve as we want to go, and, for the other side, deducting instead of adding, we will have a set of logarithms — when converted to numerals — that will give the proper values to the links of the chain. Taking a 10-minute scale, and applying the above, we get: 12.60–12.03–11.49–10.97–10.47–(10)–9.55–9.12–8.71–8.31–7.93.

But without injury to practical results, these values may be taken to the nearest half-minute, and they are so placed in the table. The 15- and 20-minute time-scales are computed in the same manner.

We will now point out the defects of the prevailing methods of development. The old method by inspection, and one now very commonly used, relies almost wholly upon density. It is impossible to judge, in the light of a darkroom, the gradual development of the contrasts. Indeed, even the finished negative, when fixed, can best be judged for the important thing — realistic contrasts — by a print. Consequently, since our exposures are seldom if ever exact in their development — where density is the chief test —

the longer exposures are taken out too soon. The result is dull, lifeless and under-contrasty prints. On the other hand, the short exposures are left in too long, and yield harsh and over-contrasty prints — approaching the "soot-and-whitewash" type. It must be remembered that within usable limits — all other conditions being equal — the contrast is as the length of time of the developing.

The chief thing is realistic contrasts, and mere density is secondary. Indeed, when properly developed, there is a wider latitude of exposures than is generally imagined which with proper printing will yield identical prints. In fact, the old nomenclature of overexposure and underexposure has lost much of its significance. Nevertheless, good exposure is still important. Developing by inspection injures the range of exposures which, with proper development, would yield satisfactory results. The negatives are more or less thick or thin; but with proper printing they will yield identical prints. It is an established fact that all usable negatives — whether thin, thick or normal — in like conditions of development reach realistic contrasts in the same time. Hence, when properly developed, the negatives give a complete index to the exposures. The thin, the normal and the thick respectively show the under, the normal and the over exposures.

The "first-appearance" form of development carries with it — in a lesser degree — the defect found in the method just examined. It gives an over and under development for the errors in exposure. However, this may be largely obviated when we develop a number of plates at the same time. In such a case, there will likely be some exposures approaching the normal, and the time factor for these may be made to govern all of the plates in the tray. Under such restriction, the "first-appearance" method offers a fairly successful mode of development. Of course, the tank cannot be used in this and the inspection-method of development.

What are generally offered as the "time and temperature" methods are defective in several ways. In the first place, it is too limited in its scope of application. In warm weather its employment encounters the danger of degenerating the sensitive surfaces of the plates, and in cool weather the chemical actions are intolerably slow. Other methods are preferable.

No system of development is satisfactory that does not confine its "mean" temperature within four or five degrees on each side of the normal 65. Still another defect in this system is that the values seem to have been obtained from experimenting with "initiative" temperatures, and we are compelled to apply these to the "mean" temperatures. This accounts for the fact that such systems give too long a development in warm and too short in cool weather.

However, there is a method of "time and temperature" development that may be used with reliable results. It takes no notice of "room" temperatures, and its chain of variations is computed — as it should be — to ten links. In its use no heed is taken of the temperature of the room. The developing-solution is poured on the plates and on the thermometer, after about seven and a half minutes, the thermometer is read, and the reading applied to a properly computed time-scale. Although this form of development is fairly accurate and carries simple directions with it, yet the method first given in this article will be found easier to apply. The "time and temperature" method is given here as follows. In making up the solution it must be so managed that the temperature, when taken, will fall between the 60 and 70 degrees of the table.

TEMPERATURE OF SOLUTION

(To be taken about 7½ minutes of the development)

	60	61	62	63	64	(65)	66	67	68	69	70
10 Mins.	14	13	12½	11½	10½	(10)	9½	8½	8	7½	7
15 Mins.	21	20	18½	17	16	(15)	14	13	12	11½	10½
20 Mins.	28	26½	24½	23	21½	(20)	18½	17½	16	15	14

In concluding this discussion, it may be proper to point out that pure reason — or pure science — can never be realized in the absolute in applied physics. The best that can be done — and, indeed, all that is required — is to reach such an approximation under the natural laws of the subject as will give reliable and dependable results for enlightened practice. The treatment given here is offered with confidence that it will do this efficiently and well.

TASTE — which has been described as the finest ornament and purest luxury of a land — is a thing of culture, and to its full enjoyment we may not hope to attain till the eye has been trained as well as the hand.—*George C. Mason.*

A Practical Home-Made Electric Printing-Box

JOHN BUTLER

JUDGING from the number of articles and notes on printing-boxes — electric and otherwise — that appear occasionally in the photographic press, it would seem that no amateur with any skill in making or modifying to his own requirements need be without one or the other of the printing-boxes here described.

The writer has good cause to remember his first few years of printing with developing-out papers. It was always necessary to wait until it pleased the other members of the household to leave the kitchen to darkness and to him. Then, there were the trays, the little yellow lamp on one side of the table; the printing-frame, negatives and paper on the other, with a cardboard-partition between. Next, the hanging droplight with conical shade was brought to within a foot or so — generally "so" — of the chair, upon which rested a watch and printing-frame — when exposing. This arrangement, at the time, gave perfectly satisfactory results, but it took too long to get into action. There was but one bulb — a 25-watt tungsten — and if the negative was at all dense, a long exposure followed, with frequent looks at the little second-hand of the watch. Whenever any work was done, up came the thought of the ideal printing-box, with its convenience and efficiency.

All the articles on home-made apparatus of the kind in mind were decidedly practical, and the finished equipment, in many cases, was comparatively inexpensive; but the wiring, etc., looked complicated, and there were too many small parts to be obtained and fitted together. Not one of these printing-boxes, however, seemed to meet exactly the writer's own requirements. Finally, the box described and illustrated in the following paragraphs was made, and, after seeing the illustrations, the reader must surely agree that it is a very simple arrangement. If he is at all handy, he can make a similar one in a few hours and at a very moderate cost. The writer's cost less than $5, and, if the box is to be used only occasionally, this expense may be cut down still further by taking tungsten lamps from spare rooms, or other sources in the house, and returning them when the work is completed.

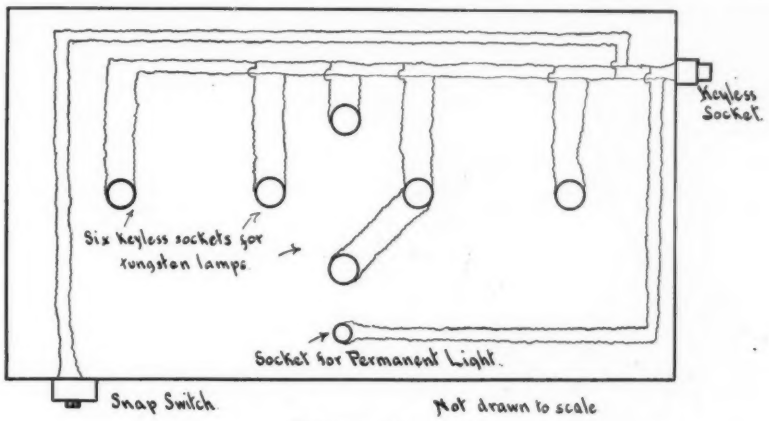

FIGURE 1.

Wires shown running in straight lines for clearness

No dimensions are given in Figure 1, as the apparatus shown was made very large and not of exactly pleasing proportions, through the necessity of having to use it for printing negatives 7 x 17 inches. A box for 8 x 10 inches would be the size generally used, and the reader can easily calculate the dimensions of the box he expects to make. A carpenter can furnish, cut and put together the wood — preferably one-inch Pattern Pine — for a moderate sum, should the reader have neither the time not the inclination to do the work himself.

Care should be observed in the wiring. Ordinary lamp-cord, or its equivalent, should be used, and a piece of asbestos paper, or thin sheet-rubber, should be placed under each socket, using electric tape wherever a join is made in the wires or such a join rests on the wooden false bottom, to be described later. A socket is placed on the right-hand end of the box, as shown in Figure 1, and wires on the false bottom are connected to this, leaving enough slack wire to enable the bottom to be lifted out for possible repair of sockets, or other attention. The sketch of the false bottom, which is simply dropped into the box after wiring, and rests on the bottom, or on two strips nailed to sides near bottom, is self-explanatory. The two end and center lights are used — not the side lights — when printing 7 x 17 negatives. The bulbs are taken out and placed in the two side sockets for 8 x 10 and smaller negatives, and thus form a cluster of four lights. With four 40-watt tungstens, the exposure for normal paper is generally but a few seconds, and a diffusing-screen of ground-glass or tracing-cloth — placed under the opening in top — may be used, although the writer has never found this necessary, as the illumination is diffused perfectly.

Figure 2 shows one of the removable tops. The outside dimensions of these tops correspond with the inside dimensions of the top of the box. They rest on a strip of wood placed inside on each end of the box, near top. It was found more convenient to have a top for each size printing-frame, as the change is quickly made from one top to another. The completed printing-box, when given a coat of shellac, makes a neat addition to any darkroom.

Figure 3 shows the completed box on a darkroom-table, and illustrates another feature not previously mentioned, viz., the safe-light — in this case a flashed-ruby glass of a light tint, or yellow may be used — which slides into the grooves provided and throws a safe-working light on the table, where the sensitive paper is loaded into the printing-frames. The light for this is furnished by a 4-candle-power carbon-lamp, which burns continuously, as the switch on front of the box controls only the printing-lights. Two wide cardboard reflectors run V-shaped in the box, thus screening the light of this lamp from the opening on top. A red or yellow bulb may be used, in which case there would be no need of a ruby screen in the front opening. Where many prints are being made from a single negative, it might be well to allow the printing-frame with negative to remain in the top opening. Reloading may be done by lifting the hinged back of the frame.

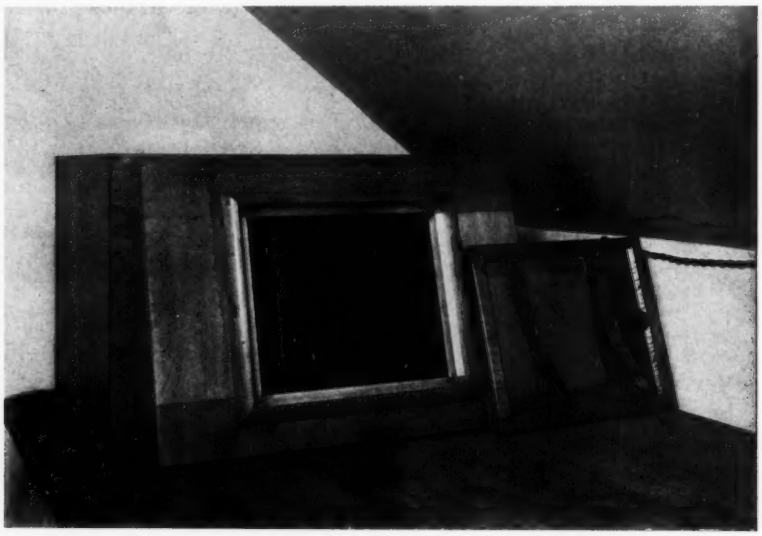

FIGURE 2

The box described has been in almost daily use in the writer's darkroom for nearly a year, and he recommends it confidently to the worker who will spend a few hours' time to make one like it — or one modified to suit his own individ-

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FIGURE 3

ual needs. Moreover, the writer assures him that the satisfaction in using it constantly and without trouble will amply repay the effort spent to construct it. In addition, there is always enjoyment in the use of home-made photographic apparatus for the reason that sometimes it meets individual requirements to better advantage than a manufactured article, no matter how well made.

Burson Makes Application

MICHAEL GROSS

BURSON was peeved. The fact that he had stood a dozen newly developed negatives out in the sun to make them dry faster was no reason for the strenuous talking-to he had just received. Did the boss think that in the first week of a fellow's first job he could learn everything? And, anyhow, if those plates had been of good quality, the sun would never have melted the emulsion and made it run off the glass.

"I guess it 's time for me to be looking around for a new job," Burson decided, as he came out of the boss' office. "No one in this place seems to appreciate an earnest, ambitious hustler, who is eager to get ahead."

True to his determination, he stopped off at the corner news-stand on the way home that night and bought a copy of *The Darkroom* — a photographic-trade weekly. In the train he turned to the page containing the "help wanted" advertisements and began to glance through them. The first and second — for novices — he rejected with a sniff of disdain. The third one, however, made him straighten up in his seat with satisfaction. "Whew!" he exclaimed, as he read it over again more carefully, "this 'ad' sounds like a summing-up of all my photographic knowledge."

"Assistant wanted"— the notice stated — "in an up-to-date studio. Must be an all-around worker; understand both outdoor and indoor photography; also know developing, printing and enlarging in all its branches. Apply to Box 338, care of *The Darkroom*."

"Why, if it were possible for me to make a job to order," Burson gloated, as he put a cross-mark to designate the advertisement, "I could n't make one that would fit me any better than this."

The letter he would write in answer to the advertisement was already forming in his brain. He knew — positively knew — that he was the

"OUR CHERUB" O. H. LOOMIS

one man for the position, and he resolved, then and there, that his application should be worded so masterfully as to convince any one reading it that the writer was the only person who could "fill the bill" perfectly.

"I wonder what the boss will say when I tell him I 'm leaving," was his next thought; "I suppose he 'll get all flustered up about it. Well, serves him right," he went on; "if he knew how to appreciate a good man, I 'd never even think of such a thing. This 'll teach him to treat the next fellow right."

That night, after supper, Burson sat down to write his letter of application. "It is n't going to be as easy as I thought," he reflected, two hours later, as he threw his twelfth uninspired effort into the waste-basket. Then, suddenly, his bump of imagination — hitherto reduced to almost a dent — started to work overtime. Burson, under the spell, began to write. Words, phrases and whole paragraphs seemed to flow from the end of his pen, and he chuckled as he read over the result of his inspiration. He had done even better than he thought he could. Modestly, and yet firmly — as became one who was sure of himself and his ability — the letter set forth his qualifications. Not even the most sceptical employer, Burson thought, could fail to realize — on reading what he had written — that the applicant was, indeed, a master of all things photographic. Burson mailed the letter and went to bed, confident that his remaining days in the "Pyro Prison"— as he had facetiously named his place of employment — were, indeed, numbered.

The next day, comforted by the thought that he would soon be rid of the wretched crew that made his life so miserable, Burson grinned his way through every trial. When the foreman scolded him for neglecting to stop down to U. S. 128 — as he was told to — before giving that 8 x 10 plate a seven-minute exposure, he merely smiled. Later in the day, when the boss became angry at finding seven filled printing-frames standing in the sun — where Burson had for-

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gotten them since early that morning — he merely walked away as though the matter were not worth arguing about, and left the boss almost tearing his hair.

"Keep it up while the going is good, you old discourager of rising genius," Burson growled, under his breath. "You 'll not have the chance very much longer."

About an hour later — on meeting the boss accidently in the aisle — Burson noticed that he had gotten over his angry spell. He smiled broadly and gave Burson an ingratiating look.

"Wants to make up for his outburst a little while ago, I suppose," Burson thought, as he noticed the friendly glance; "but it 's too late now. I 'm through here, and he might as well find it out now," and, with head held high and gaze averted, he hurried on.

The day seemed endless, but six o'clock came finally and Burson rushed home. As he opened the front-door, his eyes sought the mail-box in the hall. It contained a letter — he could see the white gleam from where he stood. With trembling fingers he opened the box and in a moment held the letter in his hand. One glance at the envelope, and he threw it to the floor in disgust. The letter was from his club, and he knew that it contained a message telling him that he was in arrears. As if he could pay club-dues on the salary he was now getting! Then, hoping against hope, he opened the box again and peered anxiously into every corner, but there was no other letter.

"I know what it is," he consoled himself. "They 're waiting for other applications to come in. But they 're foolish," he went on; "they ought to be able to tell from the way my letter was written that I 'm the man for that job. The quicker they realize it, the sooner will I be hanging my hat in their studio."

By a sheer effort of will, Burson grinned his way through the trials and tribulations of another day, and when it was over, he hurried home. Again he noticed the white gleam of a letter as he opened the front-door, and, with a silent prayer that it would be the one he was expecting, Burson opened the mail-box and took out the letter. One glance told him that his prayer had been answered. He recognized the envelope as the one he had enclosed with his application — "for your convenience in answering," as he had worded it in the last paragraph.

Hastily ripping open the envelope, he drew out the single typewritten-sheet and spread it open. The letter-head, at first glance, seemed like one that he had seen somewhere before; but Burson was in too much of a hurry to stop to analyze the impression. The text of the letter was what he was after, and he dropped his eyes eagerly upon it. He read the lines hurriedly. Then his brow puckered into a frown and, with fingers that had become suddenly numb and cold, he held the sheet closer to his eyes and re-read the lines slowly. When the words had become well impressed upon his mind, he glanced up at the engraved heading of the sheet. Now he understood why it had seemed familiar to him. The letter was from his employers, and read:

"We have your letter of application — asking for the chance to be your own successor — in which you state the qualifications that should entitle you to the job. We regret very much that we cannot agree with you regarding the ability you so generously ascribe to yourself. We will say this, however, that if you possessed one-half of the knowledge and skill that your letter says you do, we would never have inserted the advertisement that you so unfortunately answered."

"Well, there 's one satisfaction I 'll never give them," Burson muttered defiantly, when, after several moments, he had regained his composure; "they 'll never be able to say that they discharged me. I 'm going to write them a letter to-night, telling them that I resign!"

Toning Developing-Papers

WURM-REITHMEYER

FOR many — one might say for most — purposes the cold black tone of ordinary developing-papers is poorly suited. For purely technical work the black may pass; but if a pictorial effect is desired the cold tone must generally be changed. For most landscape motives, as well as for portraits, the warmer brown tones are much more suitable. The production of these tones has therefore for some time aroused the greatest interest among amateur and professional photographers, and there is certainly no lack of different methods for producing tones that lend pictorial effect to the prints. In all recent textbooks numerous good formulæ are to be found, and the toning of bromide papers occupies a large space. It may seem, therefore, superfluous again to take up the subject; but it is just this abundance of material that makes it difficult for those who have neither the time nor the means to make personal experiments to be able to select from the mass of formulæ the one most suitable for the object in view.

Most photographers do not inquire what tones may be obtained by such and such a process; but, as a rule, they want to know how a certain definite tone-color can be produced in the simplest and surest possible manner, without the necessity to buy a lot of expensive chemicals.

With these requirements in mind, the following formulæ have been worked out, based upon the well-known and generally employed indirect sulphur-toning method, in which the metallic silver forming the black print in the gelatine coating of the paper is changed to halogen-silver (silver bromide, silver chloride, etc.), and this changed afterwards to a stable combination with sulphur. By employing a weak sulphide solution (sodium, ammonium or other sulphides) a very pleasing warm sepia-tone is obtained.

If it is desired to vary the tone, this can be done by adding a salt of mercury (bichloride) either to the bleaching-solution or to the sulphide toning-bath, or by adding Schlippe's salt (sodium sulpho-antimoniate); or even by using a bath of the Schlippe's salt alone, the tone may be varied from light sepia to brick-red. The use of mercury-salts, however, is not to be recommended, because the tones are somewhat uncertain, and, besides the doubtful stability of the print, there is more or less strengthening with the increase of the mercury-salt.

In order to get deep-brown to warm black tones, the print is treated *before* bleaching for about fifteen minutes in a weak sulphide solution, which is again washed out. This treatment does not make any perceptible change in the print; but, on the other hand, when placed in the bleaching-bath it does not bleach out, but changes to a comparatively strong brown color. In this preliminary treatment in the sulphide it is not necessary to rock the tray constantly; it is sufficient to turn the prints over frequently and to see that they are always covered with the solution and that they do not stick together, otherwise the toning will be irregular.

As sulphide, besides Schlippe's salt, we use barium sulphide, because in the crystallized form it keeps much better than the generally used sodium sulphide, and hence more certain results are ensured, and because it has a much less disagreeable odor than the otherwise quite satisfactory ammonium sulphide. Barium sulphide does not dissolve readily in water; it is rather precipitated by it, giving off sulphuretted hydrogen at the same time. The best way to prepare the toning-bath is to put the quantity of sulphide in a bottle with some water and shake vigorously; this forms a milky liquid which can either be filtered or allowed to settle, using the clear portion for toning. This toning-bath loses its strength gradually, and should therefore be prepared just before using. The solution of Schlippe's salt also is unstable, and likewise should be prepared only when wanted for use.

In regard to the character of the prints used, the most suitable are those harmoniously strong, with clear highlights and deep shadows. Gray, overexposed, as well as hard prints, are not suitable for toning. The best results are obtained when the exposure is so timed that the print can be developed fully, until longer action of the developer adds nothing to the strength and development seems to come to a standstill. Do not dilute the developer too much, but use it at the strength suitable for developing plates.

The separate solutions are made up as follows:

(a) Bleaching-Bath

Water	500 ccm.	16 ounces
Potassium bromide	5½ grams	75 grains
Potassium ferricyanide	17 grams	280 grains

If kept in the dark or in a brown-glass bottle, this solution will keep indefinitely, and can be used till exhausted.

THE SAN ANTONIO RIVER — W. H. HALL

(*b*) *Toning-Bath*

Water	500 ccm.	16 ounces
Barium sulphide	2½ grams	35 grains

(*c*) *Toning-Bath*

Distilled water	100 ccm.	3 ounces
Schlippe's salt (sodium sulpho-antimoniate)	1 gram	15 grains

1. Warm Black

The toning-manipulations are as follows: 1, Immerse print in toning-bath (*b*) for about fifteen minutes; 2, Wash; 3, Bleach in bleaching-bath (*a*); 4, Wash; 5, Redevelop in any desired developer (can be done in daylight); 6, Wash.

2. Cold Sepia

1, 2, 3, 4 and 6 same as for tone No. 1; 5, Tone in bath (*b*).

3. Warm Sepia

1, Bleach in bath (*a*); 2, Wash; 3, Tone in bath (*b*); 4, Wash.

4. Dark Brown

1, 2 and 4 same as for tone No. 3; 3, Tone in 3 parts of (*b*) and 1 part of (*c*) mixed.

5. Yellowish Brown

1, 2 and 4 as in tone No. 3; 3, Tone in equal parts of (*b*) and (*c*) mixed.

6. Red

1, 2 and 4 same as in tone No. 3; tone first in bath (*c*) and then for a short time in (*b*), to effect a complete change of the halogen-silver.

If with the Schlippe's salt the coating of the paper inclines to yellow, this can be removed by immersing the print in a five-percent ammonia-bath.

If bath (*b*) is used when it is not clear, a light deposit is apt to be formed on the print, but this can be removed easily by rubbing with a moist wad of cotton-wool.

As is well known, the composition of the emulsion on the paper plays an important role, and the tones of the various makes of paper will consequently vary more or less. These variations are much greater in the gaslight-papers than in the bromides, and the same tones cannot always be got on both kinds. Tone No. 3, for instance, does not work well with gaslight-paper, giving a clayey color instead of warm sepia; but the formulæ using a preliminary bath in the (*b*) toner generally give good results.

Photographie für Alle.

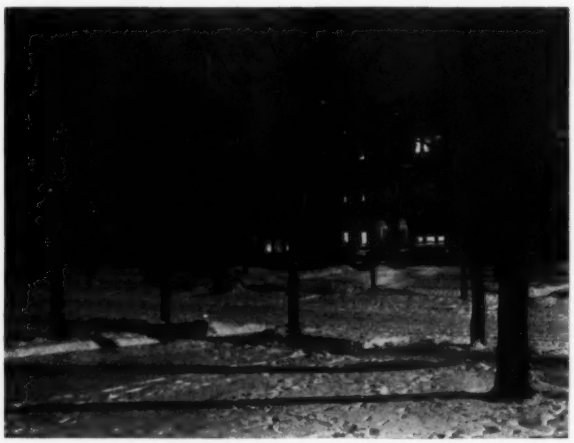
[Particular pains have been taken to investigate the formulæ and toned prints mentioned in this article. As a result, it is believed that the amateur and professional will derive pleasure and profit by further individual investigation. The effects are varied and attractive.— Editor.]

Turning Night Into Day

FRED. SUTTER

I DON'T mean in the way Bullard's immortal stein-song tells it, and therefore warn you that visions of conviviality form no part of this supper-turn. "Taking photographs at night" would be a good caption, or, in these hold-up times, "Taking chances" would be equally near the mark. As a rule, the amateur has very little daylight in winter in which to exercise his anastigmat, and I want to encourage him in the practice of taking it out after dark.

The books say that the best time to make pictures is from 10 A.M. to 3.23 P.M., or some such hours. Piffle! The best time to make pictures is about 8.30 P.M., when the winter-stars are twinkling (copyrighted), the snow creaking under foot and home-windows shining with the evening lamplight. That's the time! You don't need an actinometer, tables of exposures, a split-second shutter, or anything like that. Almost any old box will do, for the exposure will be from five to ten minutes, and it does n't matter very much whether you give it a minute or two, more or less, apparently. The most important equipment is a warm overcoat and arctics, and then, if it is raining or snowing, an umbrella will help some.



THE APARTMENT-HOUSE FRED. SUTTER

There is one thing, however, that is useful, and that is a finder made in the form of a wire frame attached to the camera, which you look through to see what is included in the picture. This kind of a finder has never been supplied with American cameras so far as I know; but it is the only finder that is of much good. The next best finder is the direct-view finder, which consists of a concave lens, through which the subject is viewed, easily and very accurately.

Taking pictures at night seems paradoxical, and one's friends always express surprise that it should be attempted. And a further paradox is this, the chance of making a successful picture is very, very much better than with a daylight-exposure. The reasons are these: the illumination is supplied by the street arc-lights, and is, therefore, virtually always exactly the same, at all hours and on any night, so that exposures are not apt to vary. Furthermore, the detail which precludes a daylight-picture simply does not exist at night. Then, again, as a rule, night-pictures are strong pictures, and you can violate more rules of composition and get away with it than by the critical light of day.

Don't worry about the light or lack of it. If you can see it, you can photograph it. This is a good rule to bear in mind. Sometimes you will be amazed at the way the camera has shown delicate values which the eye did not observe at the time, such as the tracery of tree-tops against the faint glow in the sky that hangs over every city at night.

I don't see how there can be real art without the human element. There is a lot of nonsense written about the large open spaces of the West, the refining influence of nature, and the lonely pioneer is held up as a model of all the virtues. Like most of our accepted theories, this one also does not conform to the facts. You will find among cow-punchers and out-post folk, generally, a lot of sturdy characters just the same as these are found everywhere else on earth, and the rest of the crowd is the same old run-of-mine humanity, tapering off to a pretty raw edge. Nothing to the nature-stuff. The chap whose character is not built up by contact with his fellow-man might

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stand on the rim of the Grand Cañon till he fell apart, for all the real good it would do his soul.

Your picture simply must have the human touch, otherwise it is merely a representation of trees and rocks and water, and all the perfectly useless equipment of nature. Don't make the mistake, however, of thinking that a human animal roosting somewhere on the landscape gives it the human touch. It generally does not. Better have him make some footprints in the snow and then remove himself and brogans from the vicinity. Imagination will do the rest. An apartment-house by day has about as much poetry in its appearance as the side of a barn, and yet at night the lighted windows suggest the hopes and joys of family-life, and the result is a picture. "Christmas-Eve" without the holly-wreaths is merely a bit of house-and-snow-covered bushes, together with lighted windows — a fair picture, perhaps; but it needed the wreaths to carry us back two thousand years and tell the Christmas-story. Sometimes the night is so beautiful that it hurts. Don't be a clod. When you look out after supper and feel the dorsal bristles rise — which is the real test of your soul's power to appreciate beauty — don't let it go at that. Get out the old box and prove that you have a soul! This is all very well, I hear you say; but suppose we get down to the proverbial brass-tacks. Fine! That 's making progress! And now to business.

TURNING NIGHT INTO DAY — FRED. SUTTER

THE QUIET STREET — FRED. SUTTER

The easiest picture to make is one in which the source of light, that is, the street arc-lamp, is included, such a one as, "Eight Inches by Morning." The camera should be set up so that the arc-lamp is hidden by a tree-trunk or large branch. Other more distant lights should be shielded in the same way. Lighted windows are what you want in the picture, provided no unshielded bulb is visible. The main idea is that all sources of light should be hidden. The expo-

CHRISTMAS-EVE FRED. SUTTER

sure should be about five minutes with the ordinary lens wide open, which is about F/8 to F/11. Develop the picture in the regular way, and don't pass judgment on the negative till you have printed it. Night-negatives look altogether different from daylight ones.

Look out for automobiles, and when one passes, hold your hat or the slide in front of the lens, else the headlights will make light-streaks across the picture. You do not need to close the shutter or hold the slide *against* the lens. Disregard pedestrians, for a dozen persons can walk by, but there will be no trace of them in the picture. During exposure in one of my pictures, once, a mail-collector drove up to the box, transferred its contents to his cart and then drove away, but the picture does not prove it, for he made absolutely no impression. A point to be remembered is, that time taken out for passing automobiles should be added to the exposure. If ten machines have passed, and you have shielded the lens, say, ten seconds for each one, your exposure is robbed of nearly two minutes.

Pictures like "The Apartment-House" should have a longer exposure, for, as will be seen from the picture itself, the illumination is weaker than is the case with subjects in the immediate vicinity of the arc-light. The exposure for this picture was eight minutes, with the lens opened to F/8. "Christmas-Eve" was made in seven minutes, with lens-opening of U. S. 8, or about F/11.

Use a fairly fast plate, such as Seed 30 or 27 or Standard Orthonon. There is nothing to be gained by opening up a fast lens to F/4.5, for the short depth of focus at such openings will spoil your picture. That is to say, the trees forty-five feet distant will be in focus, for example, but the objects nearer or further away than this will be blurred. A tripod is used in any case, and a minute or two, more or less, on the exposure really does not matter. Lens-openings of F/8 to F/11, which correspond to the large opening in the ordinary cameras, such as the Kodak, give the best pictorial results.

"Turning Night into Day" was given four minutes, a Seed Graflex plate, and an F/6.8 opening being used, as speed was important lest the patient individual posing might get tired out and shift his position. If you have not yet attempted night-pictures, be assured that you will find the work extremely interesting.

You do not have to wear out shoe-leather; look about you, close to your home. Of the six pictures that accompany this article two were made from my front-porch, three from the sidewalk immediately in front of the house, and the other one, "Dinner-Party," from a point directly across the street. There is plenty of matter all around, any of it good enough to practise on and much of it fit for a good picture. There is a little cobbler-shop on a side-street that I intend to get some night when there is snow on the window-sills, when icicles are hanging from the eaves and the little cobbler is bending over his work by the light of one 150-watt Mazda (which will be supplied by myself). I say some night, for as the shop is located three blocks away, it is rather beyond my usual range.

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EIGHT INCHES BY MORNING — A DINNER-PARTY FRED. SUTTER

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Copying With a Magnesium-Ribbon

MILTON M. BITTER

FOR copying, the magnesium-ribbon has some decided advantages over daylight. For instance, you can work wherever you like; you can move, direct and reflect the light to suit your needs; and, inasmuch as it is always of the same intensity, you can duplicate an exposure at any time by simply burning the same length of ribbon, if the other original conditions—bellows-extension, etc. — are the same; or if they are not, you have a fair working-basis to calculate exposure. This is of great advantage to amateurs.

In making a long daylight-exposure of an interior with a small stop, you may walk directly into the picture — if you keep in motion and cover up collars and cuffs — and illuminate a dark corner or heavy shadow by throwing a stream of light into it from a burning magnesium-ribbon, lighted from a short piece of candle fastened to the interior of one side of a box. Care should be taken to keep the box in motion and always in a position so that the direct light will not shine into the lens. To do this, a slow forward movement of the box must be maintained, so that the smoke will fall behind the box into the shadow and not catch the illumination from the front.

The magnesium-ribbon, too, is very serviceable to make home-portraits of a subject that is well braced — with head resting on one hand, for instance — or a "still-life" picture such as a vase of flowers. Through its use for these subjects, the necessity of reflectors is obviated, since whatever illumination may be desired on the shadow-side may be obtained with a second, very brief exposure. Once you have found the correct exposure for subjects of this kind — with any particular plate — you may be assured of correct exposures in the future.

Indoor snapshots may be made by using a sufficient length of ribbon, doubling or trebling back the strip and twisting it into one cord-like piece. This will give a very intense light. A thin diffuser may be used to advantage.

The ribbon is particularly valuable, too, to copy pictures that have considerable grain, inasmuch as brief exposures may be made on top, bottom and sides, thereby eliminating the shadows of the grain. The exposure, however, may as well be made continuous by moving the ribbon in a circle, being careful to keep it at a sufficient distance from the center to avoid reflections, which would spoil the result.

In making the copy of the painting, "Mater et Puer," the large and heavy glass was not removed from the picture-frame. After focusing with a large lamp set close to the picture, which was standing on a box *flat* against the wall, the lamp was removed and a candle lighted. All other lights in the room were extinguished. Then the candle was held at various distances from the side of the camera, a few inches back of the lens, while I watched, on the ground-glass, the position of *the image* of the candle-flame as it was reflected back into the camera from the glass on the picture. When the image of the flame passed off the ground-glass I noted carefully the distance from the candle to the camera. This showed me how far from the camera I must use my ribbon in order to avoid reflections. On the opposite side of the room — directly facing the picture — was a white-enamel washstand, and the picture-glass acted as a mirror. When the exposure was made my assistant held the dull side of a focusing-cloth *directly back of the camera* while I burned the ribbon. Two exposures were made — one on each side of the picture — by moving the burning ribbon in a semicircle from a position well above the camera to the floor. The lens was closed between the exposures so that in passing from one side of the room to the other with the lighted candle the reflection would not be thrown into the camera. The ribbon was ignited at the candle and held over the candle-holder — but not over the flame — *in order to catch any hot ashes that might fall.* This point should be emphasized, else, in attempting experiments, a valuable rug, carpet or other furnishing might be damaged or a fire started.

Five inches of ribbon were used for each exposure. The length of the ellipse is thirty-two inches and the picture was about fifty-six inches from the camera. The plate was a Cramer Portrait Isonon Isochromatic. The Isonon is rated by Cramer as of about the same speed as the Crown, which would seem to indicate that a slow plate is not absolutely essential to this kind of work. The plate was developed with a somewhat concentrated pyro-acetone developer. Inasmuch as the white paper on which the picture was made had become slightly yellowed with age — over twenty years — a 2-time color-screen, Cramer Isos 1, was used. The photographic print is on Professional Cyko, semi-matte, developed with amidol. The result speaks for itself.

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MATER ET PUER
MILTON M. BITTER

The Anastigmat

WILLIAM FINDLAY

THAT was an interesting little article in the November number of PHOTO-ERA by Grace C. Rutter, entitled "Adventures in Home-Portraiture." The only regret that one might have is that the picture of the little child, that she put herself to so much pains to portray so lovingly, did not accompany the article. The homelike quality of the article, and the unassuming style of the writer, appealed to me, as it must have to many other readers; but what came home most personally to me was the longing expressed by Miss Rutter that with an anastigmat lens she could vastly improve her work. This is not a new longing. Doubtless the desire has entered into the hearts of most enthusiastic amateurs. I know that it entered mine, and my experience in this particular may be of benefit to others. Hence these lines to other photographic workers.

I felt, too, that if I had an anastigmat I could work wonders, and I had my desire fulfilled. I sold a number of my negatives — seascapes they were — to an eminent firm of publishers, and with what I then considered a windfall was able to open negotiations for the purchase of the lens. Before proceeding with the story further, I may say that many a time and oft I have regretted parting with at least three of these negatives, and I pass on the hint to any amateur who cares to take the advice, viz., on no account to part with negatives. By doing so one parts with the copyright, and though the dealer may make a handsome profit out of them, and reproduce them in any form he thinks fit, the former owner has no future claim on him. When bargaining, make your stipulations in a business-like manner, and have an agreement as to the form of reproduction *from a print* — but keep your negatives. There may be pictorial possibilities in them that do not reveal themselves to you, but which will dawn on you as your knowledge is extended. Many chance snapshots of yesterday are salon pictures of to-day. This fact should be remembered.

But to the story of the anastigmat lens. The price was not exorbitant, but still beyond my means. However, by exchanging a good old rectilinear lens which had been the means to many of my best seascapes, I was able to purchase it. On fitting it to my camera, I found that its focal length was an inch shorter than the old rectilinear. It covered the plate sharply at the aperture of F/6, as stipulated, and I proceeded to conquer new worlds. The first examples obtained by it were up to expectations — indeed, one of them yielded me my first medal. However, as time went on, I longed for my old lens. In seascape work — and working against the sun, too — it was found that even with the shortest exposure the shutter was capable of making — $\frac{1}{100}$ of a second — and using the lens at its full aperture, overexposure resulted. Stopping-down had to be resorted to. If stopping-down had to enter into calculations, would I not have been better off with my old lens? Then, again, the boats which were invariably included in the composition were much smaller on the plate by reason of the shorter-focus lens. At that time, enlarging had not been resorted to, and it was a bitter disappointment that in the contact-prints the principal features appeared so small and insignificant. However, with the advent of an enlarger — another desire that comes to most of us — my regrets on this score vanished. But still I deplore parting with my trusty rectilinear, and often wish I could have it back.

The anastigmat will undoubtedly help Miss Rutter in her home-portraiture, and with so much enthusiasm as she unconsciously displays in the course of her charming article, she will do good work with it. However, the point I wish to emphasize is that if one has become accustomed to a good lens, and has obtained good work with it, one ought not to discard it lightly, even though one is in the fortunate position to be able to purchase an expensive anastigmat.

My friend, Mr. William Norrie, has soared to the anastigmat lens, and though I grant that the work he produces with it shows distinct individuality, and probably more "air-space," yet I doubt that with his new love he will excel the grandeur of his "Fraserboro Sands," or the deep tragedy of "She 'll Plough the Waves No More," which pictures have been published in these pages and, doubtless, have been admired by readers. They were taken with an unpretentious slow lens which also yielded other masterpieces. I hope I have at least pointed a moral, if I have failed to adorn a tale.

[It must not be assumed that Mr. Findlay would discourage the purchase of an anastigmat lens. He writes solely of his own experience. No doubt, if he had obtained an anastigmat lens of the same focus as his rectilinear, he would have had no cause to complain. Excellent pictures may be made with a rectilinear; but the anastigmat yields the better results.— EDITOR.]

XUM

Color-Photography

THE real history of photographing in colors and various fairly successful attempts at picturing natural colors antedates ordinary photography, discovered in 1839, almost forty years. For the principles, the knowledge of which makes it possible to take pictures in color to-day, we are indebted to discoveries and analyses of light made by Sir Isaac Newton in the seventeenth century. Practical solution of it is a very modern achievement, however.

All photography is based upon the principle of light-action on silver, the latent image impression upon salts of silver, being reduced to metallic silver, cleared and made permanent by chemical action, resulting in an authentic record, for future reference, study or possible duplication by hundreds and thousands.

This image impression is secured by using a lens, camera, shutter and plate, comparing favorably, if not *originating*, with the arrangement of the human eye. The crystalline lens, receiving and inverting the image upon the retina, corresponding to the sensitive plate — eyelids acting as shutter, and the iris, like our diaphragms or stops, regulating the quantity and intensity of light and sharpness of the image. The primary color-sensations recognized by the retina are those used in securing color and color-combinations on the photographic plate.

All color-photography methods to date, then, secure the picture in monochrome, or *one color*, by the above-mentioned methods, supplemented with dyes or transparent pigments, as few in number as possible, yet capable of producing all colors — and doing so automatically. In order to grasp the various applications of these principles, it is necessary briefly to review the spectrum, and its relation to this, and scientific tests in general.

Newton's discovery was that, instead of being a simple thing, white light is really a compound, and by refracting a ray through a slit and prism, he found that it consisted of a great number of differently colored rays. These he grouped into a spectrum or scale of seven colors — violet, indigo, blue, green, yellow, orange and red, which *always* occur in white light, and *always* succeed each other in this *immovable* order. Later scientists reduced this to six, omitting indigo. By blocking out all but one and interposing from another spectrum, he tested out individual colors, finding which were produced by mixture and which were incapable of further division. He, and later scientists, resolved these back to three primary colors (originally thought to be red, blue and yellow), to those which we are now taught are the three elementary color sensations recognized by the optic nerve, and which by admixture of various degrees produce every shade and hue in nature. These are *red*, *green* and *blue-violet*. Demonstrative proof of this is usually made by isolating these three from different spectrums, and either by lapping them or reassembling through a lens, white light is instantly produced.

Difference in color of the spectrum-rays is due to the number of vibrations producing each, possibly evidenced by their distance from the prism and various widths, violet having the most, red the least, the exact proportion in 1 inch of white light being 70,000 violet, 45,000 yellow and 30,000 red, other colors in proportionate ratio. When we consider that white light has a velocity of 180,000 miles a second, modern theories of wave and vibratory principles are too far-reaching and incompletely developed a subject to take up in detail here.

It is well to keep in mind that, when reduced to figures, *wave*-length and *wave*-*vibrations* are apparent contradictions. Violet has the shortest *length* but the most vibrations, whereas red has the greatest length but the fewest vibrations, like ripples and billows of water, respectively; or the violets might be compared with the high-sound vibrations of the sopranos, whereas the long waves and fewer vibrations of the reds are not unlike the basses in music. Also it is well to add, in passing, that light-waves are of great variety, some producing heat, some electricity, some chemical effects, some X-rays and others radium rays.

Certain fixed dark lines which separate the various colors of the spectrum were discovered by Fraunhofer in 1814. At the time he divided these into ten fixed sections in any spectrum, and later subdivided these into 600. With improved instruments of to-day, recent workers have mapped out thousands. Therefore, these Fraunhofer subdividing lines, together with later discoveries disclosing additional rays above the normal spectrum, called *ultra-violet*, the vibrations of which are too rapid to be recognized by the eye; and *infra-red* rays below the normal spectrum, with vibrations too slow to be sensed, give an accurately reliable standard for thousands of analyses in the arts and sciences, particularly chemistry and astronomy. The final test for *colors* is spectrum-analysis. With the primary colors, using black to produce *shades*, and white to make *tints*, the Standard Dictionary names and gives mixtures for 487 different colors.

Spectrum-colors do not correspond to painter's mixtures because pigmentary colors are never free of contamination, being affected by the medium carrying them. This is particularly true of red and green, which in the spectrum produce *yellow* in combination. In pigments this would result in almost black.

"We recognize color-sensations only as *reflected, absorbed, diffracted* or *dispersed;* in other words, we see an object which is not itself luminous, like a lamp, because it reflects light, and we recognize its *color* by its absorption of certain colors from white light, *reflecting* the rest." Were this not so we would go blind.

White is the *reflection* or *combination* of all colors, whereas black is the *absorption* or *absence* of all colors. White is *positive*, black *negative*. A complementary color is any one which, when mixed with another, produces white or nearly white. In a sense these might be termed positives and negatives in color, like black and white. Newton attempted to establish a rule for recognizing them by bending the spectrum into a semicircular or horseshce shape, colors on opposite sides being complementary to each other, and Maxwell, a recent scientist, modified this into a tr'angular shape with green, red and violet at the apexes. By disregarding mixtures and keeping the primaries only in mind, one may simplify the idea of complementary colors, viz., red and green are complementary; these two combined produce yellow which must be complementary to violet, etc. The high velocity of the violets and blues, and recent proofs that ultra-violet light also has great actinic qualities affecting silver-salts, explain why these colors take *lighter*, whereas red, yellow and greens take *darker* than the eye senses them; also why violet and blue lights are used for quick photography, whereas deep red and orange lights may be used for darkroom illumination.

Therefore in ordinary photography, in order to render a more correct record of the proportionate brightness of things as the eye sees them, regardless of color, plate-makers incorporate pink, yellow or green tints in plate-emulsions to assist or to make up for the lower-tone colors, or to give these handicapped ones a more equal chance to registering correctly in monochrome. These plates are termed Orthochromatic (correct color), Isochromatic (equal color) or Panchromatic (all color), the last being made specially sensitive to red and green and developed best in total darkness. With these it is still necessary to use yellow screens of various hues in front of, between the lenses or back of them, to absorb the excess violet and blue rays.

When we recall that we recognize color because we see it *reflected* and the rest of the spectrum *absorbed*, also that red and green produce yellow, it will readily be seen that a yellow screen *transmits* its own color, yellow, as well as red and green rays, but *absorbs* blue and violet.

Coming to photography in all *colors* or *color-photography*, bear in mind that a color, being transmitted through a screen of its own shade, has its action upon silver regulated by exposure up to a point where it matches, then overmatches, by overexposure. Having matched or recorded its own color, the result is that the silver-salts are blackened over so that in the negative it is covered or blocked out, and only its complementary color shows. In a positive the real color shows, and the complementary is blocked out. Being forced to cut down the overactivity of the blue and violet rays with yellow screens, and filter all colors through their own media, which has had to be done at the expense of exposure, one can appreciate the difficulties that hosts of scientists have had to contend with to obtain practical results. Yet all color-processes had to be built up on this intricate registration of the various primary colors, allowing for their proper individual exposures, and to judge by their complementaries in the negative, what values to expect in the positive.

In the final positive, clear glass, or massing of the primaries, produce white, silver, darkened by the light, produce the blacks, and the pigments or dyes incorporated in the plate or screen automatically blend themselves to record colors as received up to the matched point as mentioned above. Underexposure darkens and overexposure lightens them. All dyes used must be transparent to correspond to spectrum-colors, and be kept from dissolving through the necessary developing-solutions required to bring out the actual picture, and still remain non-fading by prolonged and future light-action. These are the basic principles of *three* present-day processes. Two others make use of two and three screens dyed to record each primary color, filtering them out of the images thrown on two or three plates exposed simultaneously. The resulting positives are then dyed, and by superimposing them all colors are automatically rendered visible.

The McDonough-Joly process photographs through a sheet of glass ruled with parallel lines alternating red, green and blue, at a gauge of 300 to the inch, onto a sensitive plate. The resulting negative leaves the plate transparent to the complementary colors, a positive from this leaving it transparent to the real ones. By placing this in contact with the original mechanically ruled screen, or one identical, all colors and their various combinations become visible. The same

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PORTRAIT OF MRS. G.
P. A. OF A. SALON, 1916
J. D. STRICKLER

idea was applied to silvered paper ruled as above, and by perfect register all but the true colors would be blocked out in printing.

The Lumière process consists in spraying each plate with a microscopically fine deposit of colored potato-starch grains, about 20,000 to the inch, each 100 grains carrying a proportionate mixture of 45 green, 28 blue-violet and 27 red-orange deposits; a waterproof-coating follows, and over this a panchromatic emulsion of gelatine. The negative is made through the glass side, forcing the image through the finely stippled colors before registering on the sensitive film, and, after development of the negative, is instantly chemically treated and thereby reversed to a positive, without clearing or fixing. Each plate carrying its own colors and filters; they cannot be duplicated except by taking the scene over again on a new plate under virtually the same conditions of exposure.

The Paget process is a cross between the above two — a mechanically stippled-in color-screen being used in front of the plate as a taking-screen, a transparency made from the resulting negative being then viewed through an identical color-screen which is bound to it in register, all colors being thus rendered visible. Its distinguishable feature is that having the color-filter separate from the plate makes it possible to duplicate at will and with uniform results.

The Hess-Ives or Hicrome process consists in exposing three plates simultaneously, the plates being carried in a one-piece triple unit, and so arranged that at time of exposure the red recording plate is in the back, film to film against the green-recording plate, whereas the blue-violet plate received its image from a reflecting, transparent mirror brought into 45° angle to it, after attaching plateholder to the camera. The back of the green-recording plate carries a red filter affecting the back plate. The plates are developed simultaneously, and final positives on transparent celluloid dyed to correspond and superimposed and cemented together, resulting in full-colored picture. This process permits any number of duplications from the original negatives and is a great advantage.

It is evident to the reader of what great commercial value color-photography will become, aside from its highest expression in portraiture. It is already of inestimable worth in advertising sales of paintings, objects of art, rare furniture, stained-glass windows, choice fabrics, tapestries, rare flowering plants, gardens, etc., and to physicians in obtaining accurate records of skin-eruptions and peculiar pathological cases.—[Review of a paper read at a recent Rotary Club luncheon by Lou Merillat, of Kingston, N. Y.]

The Need of Translations

Among the numerous factors that, combined, have put us at a disadvantage in our recent relations with Germany, has been our neglect of the progress made in certain scientific directions in that country. The Germans have never neglected the matter of publication; but up to quite recently their publications were closed books to everybody who could not read German, and most of them are so still. While everything of scientific importance published here was immediately recorded and translated, or abstracted, in Germany, we did nothing of the kind excepting in a most ineffective and useless fashion. Chemistry has been treated rather better than optics in this respect, but that is only because it could hardly have been treated worse. The result has been that English students have been kept years behindhand in knowledge. It may seem hardly credible, but it is a fact, that the Gauss theory of thick lenses began to be brought prominently before optical students here only about fifty years after it was first published, and just when the newer Abbe theories were about to replace it to a large extent. These later theories then took about sixteen years to find their way here in English, and in anything like adequate form. It is fairly evident that if English students are to be kept back for periods like this, it is difficult for any general progress to take place. The translation and publication of such works as Czapski's theory of optical instruments (there are many others equally worthy) would probably not be a paying event to an individual undertaking it, but the neglect is a dead loss to the nation at large, and a loss that ought to be avoided. We hope that in the general upheaval of things now taking place, some steps will be taken to remedy this past neglect, so that every English student may at least have the chance to start on equal terms with the German students, who doubtless will survive the war.

The British Journal of Photography.

Praise by friends and relatives of a person's untried ability in art, however sincere, is more of an obstacle than a help, unless based upon sound, practical knowledge; but "approbation from Sir Hubert Stanley is praise, indeed."— W. A. F.

Quality has nothing to do with the photographer achieving pictorial and original photographs. His is an automatic process, as far as the photographer is concerned; and it is the artists who are responsible for the brilliant results.

Hugh Cecil.

EDITORIAL

Camera-Care

THE element of regular, periodical inspection of an institution or a piece of machinery is a guaranty of its welfare and efficiency. The man who buys an expensive automobile finds it necessary to have it overhauled by an expert technician once a year, and pays a large fee for such a service. A good pianoforte needs a similar inspection at the hands of an expert, by whom the instrument should be cleaned and tuned, and rusty or broken strings replaced; but tuning no less than four times a year is indispensable if the piano is to stay in good condition. The wise owner of a good set of teeth has them examined by a reliable dentist at least twice a year, so that impending trouble may be averted. It is easy to see that neglect to care for these things spells possible consequences of a serious nature. Some part of the main engine in a large manufacturing-plant may give way at any moment, without the least warning, and not only shut down the power, but cause a serious accident. An inspector of buildings — in an ill-governed municipality — slights his duty, and an uninspected, defective wire or a pile of rubbish starts a fire which may terminate with disastrous results. Numerous other cases could be cited to show the importance of frequent and careful examination wherever its omission would be likely to prove dangerous or cause a profound disappointment.

This leads up to the subject of care to be exercised in using photographic apparatus — speed-cameras, for instance. Take an intricate and high-priced instrument of the reflecting type, a Graflex or a Soho, with its hidden mechanism. A blow or fall — and the focal-plane shutter, the mirror or the lens is likely to be injured. It will not function properly, although, at the time, this may not be noticed by the user. The faulty results, however, will be the only proof of imperfect response. A negative that is overexposed, or not exposed at all, an image that is blurred, out of focus or partly so, or exhibits results due to a disordered equipment, demonstrates the necessity of a thorough inspection before any important work is undertaken. Such a task had better be entrusted to specialists of recognized ability, unless the owner of the camera, himself, is an expert mechanic. The mechanism of a compound shutter, for instance, is almost as intricate and delicate as that of a watch, and any attempt by the unskilled user to restore its suspended efficiency, or even to take the instrument apart, might spell disaster.

As to the lens, none but an expert optician can restore the disrupted cement (Canada balsam); but a more serious damage requires the attention of a professional lens-maker, preferably one recommended by the manufacturer or his accredited agent. Then there are the hinges, springs, screws, that are to be cleaned, oiled and tightened — also by an experienced workman.

Thus, as has been shown, a valuable camera should be entrusted to a thoroughly reliable camera-repairer once a year and, certainly, before undertaking any important work in a far-off region. The season for outdoor work *par excellence* is now at hand, and the prudent amateur will lose no time to mend his photographic fences. PHOTO-ERA can help him, for skilled and reliable photographic mechanics are scarce.

Admired in Photo-Era

A REFINED means of publicity of the work of the professional and the amateur photographer is being afforded by PHOTO-ERA, each month, and is regarded by them as a source of pecuniary profit. There are many high-class publishers of calendars, posters and pictorial designs who are regular subscribers to PHOTO-ERA, and who, when impressed by a particularly attractive picture in its pages, communicate with the Editor regarding the address and character of the author. This information is imparted at once, when the photographer is clearly in the market for the sale of his pictures or negatives. In doubtful cases, the Editor refers the matter to the photographer himself. Many workers are averse to dispose of prints or negatives for commercial purposes through certain well-known methods, preferring to deal with firms approved by a responsible magazine-publisher.

Among the pictorial contributors to PHOTO-ERA who have derived material advantages from this method are William S. Davis, B. F. Langland, Rupert Bridge, S. H. Gottscho, A. W. Dimock, Mrs. Cassidy and Mrs. Durrant. Portrait-photographers, such as Garo, MacDonald, Ellis, Schwarz, Halldorson and Butler, have benefited by an increased prestige, for they seem to regard their work published in PHOTO-ERA as a compliment as well as a first-class advertisement.

ADVANCED COMPETITION

Closing the last day of every month
Address all prints to PHOTO-ERA, Advanced Competition
383 Boylston Street, Boston, U. S. A.

Prizes

First Prize: Value $10.00.
Second Prize: Value $5.00.
Third Prize: Value $2.50.
Honorable Mention: Those whose work is deemed worthy of reproduction with the prize-winning pictures, or in later issues, will be given Honorable Mention.

Prizes may be chosen by the winner, and will be awarded in photographic materials sold by any dealer or manufacturer who advertises in PHOTO-ERA, or in books. If preferred, the winner of a first prize may have a solid silver cup, of artistic design, suitably engraved.

Rules

1. This competition is free and open to any camerist desiring to enter.

2. As many prints as desired, in any medium except blue-print, may be entered, but they must represent the unaided work of the competitor from start to finish, and must be artistically mounted. ***Subjects which have appeared in other publications are not eligible, nor may duplicate prints be sold, or entered in competition elsewhere, before Photo-Era awards are announced.*** Sepia-prints on rough paper are not suitable for reproduction, and such should be accompanied by smooth prints on P. O. P., or black-and-white paper having the same gradations and detail.

3. *Unsuccessful prints will not be returned unless return-postage at the rate of one cent for each two ounces or fraction is sent with the data.*

4. *Each print entered must bear the maker's name, address, the title of the picture and the name and month of the competition, and should be accompanied by a letter,* SENT SEPARATELY, *giving full particulars of date, light, plate or film, make, type and focus of lens, stop used, exposure, developer and printing-process. Enclose return-postage in this letter. Data-blanks will be sent upon request.* ***Be sure to state on the back of every print exactly for what competition it is intended.***

5. Prints receiving prizes or Honorable Mention become the property of PHOTO-ERA, unless otherwise requested by the contestant. If suitable, they will be published in PHOTO-ERA, full credit in each case being given to the maker.

6. Competitors are requested not to send enlargements greater in size than 8 x 10 or mounts larger than 12 x 15, unless they are packed with *double thicknesses of* ***stiff*** *corrugated board, not the flexible kind, or with thin wood-veneer.* Large packages may be sent by express very cheaply and with indemnity against loss.

7. The prints winning prizes or Honorable Mention in the twelve successive competitions of every year constitute a circulating collection which will be sent for public exhibition to camera-clubs, art-clubs and educational institutions throughout the country. The only charge is prepayment of expressage to the next destination on the route-list. This collection is every year of rare beauty and exceptional educational value.

Quarterly Miscellaneous Competitions

IN order to extend the opportunities for participation by a larger number of our readers, and to broaden the scope of the entries, these will be a feature of 1917.

Awards — Spirit of Christmas Competition
Closed January 31, 1917

First Prize: R. J. Morrow.
Second Prize: Bertram F. Hawley.
Third Prize: Anson M. Titus.
Honorable Mention: M. N. Bremon, Elizabeth B. Wotkyns.

Special commendation is due the following workers for meritorious prints: Thomas J. Greaney, H. C. Sorensen, Oscar G. Whiting.

Subjects for Competition — 1917

"The Spirit of Winter." Closes March 31.
"Home-Portraits." Closes April 30.
"Miscellaneous." Closes May 31.
"The Spirit of Spring." Closes June 30.
"Landscapes with Figures." Closes July 31.
"Miscellaneous." Closes August 31.
"The Spirit of Summer." Closes September 30.
"Vacation-Pictures." Closes October 31.
"Miscellaneous." Closes November 30.
"Flashlights." Closes December 31.

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"The Spirit of Christmas." Closes January 31.
"Miscellaneous." Closes February 28.

Photo-Era Prize-Cup

IN deference to the wishes of prize-winners, the Publisher will give them the choice of photographic supplies to the full amount of the First Prize ($10.00), or a solid silver cup, of artistic and original design, suitably inscribed, as shown in the accompanying illustration.

Change of Address

SUBSCRIBERS who desire to change their addresses are requested to inform us not later than the 5th of the previous month, as the envelopes must be addressed and classified for mailing on the 10th.

Failure to do this puts it up to the subscriber to procure his copy from his former post-office address, and no duplicate copy can be expected from the Publisher of PHOTO-ERA.

We beg to invite the attention of workers to the rules governing the Advanced and Beginners' Competitions in order to facilitate a fair, intelligent and prompt decision on the part of the judges.

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THE SPIRIT OF CHRISTMAS R. J. MORROW

FIRST PRIZE — SPIRIT OF CHRISTMAS

Miscellaneous — Advanced Competition

Closes May 31, 1917

We come this month to the second of our quarterly general topics, when any subject may be entered in the competition and judged "on its merits." The "merits" in these competitions consist less in technical excellence — though that enters into it — than in pictorial quality and excellence of composition. Henry Poore, in the introduction to his book on Composition, which, by the way, is a very valuable one to those eager to improve their work pictorially, quotes the following sentences, which are, if I am not mistaken, even more applicable to the photographer than to the painter: "The painter is a compound of a poet and a man of science." and "It is working within limits that the artist reveals himself."

For instance, the limits of the landscape-photographer are far greater than those of the painter of similar subjects. The photographer must take things as he finds them — except in some minor details — whereas the painter-man may leave out at will the offending poles that spoil so many subjects for the photographer. Yet, the proof of the artist-photographer is his ability to choose the right point of view; to so work "within his limits" as to produce a well-balanced and pleasing composition, minimizing the defects and accenting the pleasing features. With some fortunate individuals, this ability seems to be instinctive. They could hardly give you a single rule of composition; yet, their pictures show a strong feeling for balance and unity. However, these are the favored few, and a knowledge of the general principles of art is necessary to most people if they are to produce pictures worthy of the name.

A good book on composition is an invaluable addition to a photographic library. An excellent one is that by Henry R. Poore, previously referred to — "Pictorial Composition and the Critical Judgment of Pictures." This is written as much for the photographer

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as for the painter, and it takes up all phases of the subject that one is likely to need. Having obtained a definite idea of what constitutes good composition, the reader will find that an excellent way to "clinch" his knowledge is to study pictures — whether good or bad — to make sure that he knows whether they are good or bad, and why. Such self-training will result in a better understanding of true composition, and it will save many a plate from being wasted on a view of no pictorial value.

An excellent little "direct-view finder" may be made by cutting a rectangular opening in a card. This may be made to include more or less of the subject, according to the distance it is held from the eye. It is even better, perhaps, to cut this finder apart at diagonally opposite corners. Then, the two pieces may be slid over one another to vary the shape as well as the size of the opening, and almost any desired effect obtained. This is a great help to locate pictures. Without such an aid it is often hard to tell how certain objects will appear when isolated from their surroundings. A composition must bear the proper relations to its boundaries or frame, and the location of an object with regard to these boundaries has a direct influence on its prominence in the picture. The weakest spot in a picture is the center of the picture space, and objects increase their power to draw the eye as they near the margins. Also, an object in the foreground has less weight than one in the distance. This fact is the foundation of the steelyard-balance; namely, the small weight on the long arm balancing the larger weight on the short arm. On this principle, an object made small by distance proves an adequate balance for a larger, darker object in the foreground. On page 41 of January PHOTO-ERA is a view that illustrates this fairly well. If the dimly defined object in the middle distance were removed, the heavy mass of trees at the upper left would be unstable; but with this distant unit, balance is obtained, and the composition holds together satisfactorily. The spacing in this print is also an interesting study — being a mixture of good and bad. The rule of division into thirds is an excellent one, but division of any margin in the center is not good. At the left in this picture, the division between trees and bank is nearly central. At the bottom the road divides the space too evenly with the bank. However, at the right the margin is well divided, the road using about one-third. At the top, also, the division is good, about two-thirds being taken by the foliage. The vanishing-point of the road is about one-third of the distance from the bottom and the left side, so that on the whole the space is well divided.

It goes without saying, that one object should be predominant over all others in any picture. Emphasis may be given the center of interest, either by position or by contrast of light and dark. A light object against a dark ground, or *vice versa*, has stronger attraction than the same object against a neutral ground. In landscape-photography these accents of light and dark can be obtained almost solely by the play of light and shade. If a good composition is found, but the lighting is unsatisfactory, it is better to wait, if possible, and observe it at different times of day, under different atmospheric conditions — even at different times of the year, when the light falls at different angles. Some views that are unattractive in a broad full light, take on charm and poetic feeling under the level slanting-rays of a low sun, and others are transformed by the illusive mystery of the autumnal haze. One should try to transfer to his print not only the well-arranged objects before him, but the feeling which these objects inspired. In so far as one succeeds in doing this, one has produced a picture and not a mere uninteresting record.

In interior work — portrait or genre — the worker has more control over his material and its lighting and arrangement. In portraiture, the face should be the chief attraction, and the arrangement of the drapery, the placing of the hands and the choice of background or accessories should all be with a view to giving balance and predominance to the head. I know of no better example of oval composition than the picture known as Raphael's "Madonna Gonzaga," and shown at 500 Boylston Street, Boston. The two heads hold the eye irresistibly; yet a line of interest follows down the form of the child to the Mother's beautiful left hand, and is continued by the lights on the drapery of the arm until it draws the eye again to the face. There is no escape from that oval of light.

The triangular composition is possibly the easiest and most frequently used for both single figures and for groups. This is a usual design for the Holy Families so dear to the Old Masters. That of Murillo's is a familiar one, where the child Jesus is standing supported on both sides by the sitting or kneeling figures of Joseph and Mary. Whistler's portrait of his Mother is one of the seemingly simple and natural compositions which is nevertheless wonderfully thought out as to line and balance. The footstool, the baseboard, the picture, the curtain — each is essential to the success of the whole. One has only to compare the original with any of the numerous attempts to copy it, to understand the importance of each seemingly negligible unit in the painting.

The photographer and the painter begin at the opposite ends of the scale in arranging a picture. The painter has blank canvas, to which he adds detail at will; the photographer starts with a superabundance of detail, which he must subordinate in certain parts of his composition in order to give prominence to his chief theme. This he does largely by throwing unimportant parts into shadow and concentrating the light on the parts to which he desires to give emphasis. If in taking a picture it is not possible to bring shadow where it is desirable that shadow should be — he may have recourse to the ever-ready Farmer's Reducer, to subordinate too prominent objects. If the negative is placed for a few minutes in the fixing-tank after treatment, later discoloration will be avoided. It is a helpful lesson to go over one's negatives and see how they might be improved by some after-treatment. Perhaps some subjects that have seemed unsatisfactory can be so improved as to be worthy to be entered in the competition.

KATHERINE BINGHAM.

Mask Cutting

ONE of the "tricks of the trade" given by Mr. Wade at the Eastman School was a method to cut border-masks and keep them in register. The chief trick is to cut the masks double. That is, instead of taking two pieces of paper, take one piece twice the size desired and fold it once, making a double sheet the size of the mask. Locate your opening the size of the print, a little above the center, and — holding firmly — cut through both pieces with a sharp knife. Now, open the paper and cut the opening on one side as much larger as you wish, to give the border the desired width. Close the mask again, and with a pin make register-marks through both sides at one corner. Two holes on each side of the corner should be made, and then pieces of thin card glued to each half, so that when the print is pushed against these it will be in register with each half of the mask. Without separating, fasten the side with the larger opening to some transparent support, such as celluloid or glass. Take the piece cut from the smaller opening and cut about one-sixteenth of an inch

XUM

CHRISTMAS-THOUGHTS BERTRAN F. HAWLEY

SECOND PRIZE — SPIRIT OF CHRISTMAS

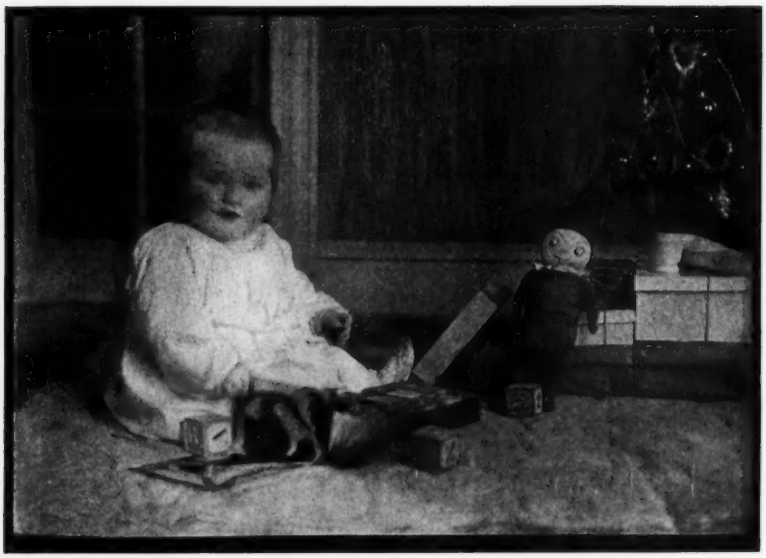
from both length and width, then close the mask, and through the smaller opening fasten this piece to the support of the other side. You can then separate the two parts on the fold, and you have a border-mask that should register perfectly.

If it is desired to make the openings oval in shape, and one has no cut-outs that are of suitable size, ovals of any shape may be cut after this fashion. With a ruler, draw a line the length of the desired oval. On this line make two dots, one as far from each end as a fourth the width of the oval required. Take a piece of string the length of the oval, and pin the ends to the dots so made. Place the pencil inside the loop, and holding the string taut, draw the oval. For instance, if the desired oval is 4 x 6, make the 6-inch line and, as one-fourth of four inches is one inch, place a dot one inch from each end of the 6-inch line. A 6-inch string pinned by the ends to these dots will make your 4 x 6 oval correctly. When two ovals are to be cut, with an even one-half inch margin between, lay out each oval after this manner, one having one inch greater width and length than the other. KATHERINE BINGHAM.

Photographing by Invisible Rays

THE fact that photography can depict objects invisible to the eye has long been known. Fox Talbot referred to the subject in his book, "The Pencil of Nature," published in 1844, and his own words are: "Among the many novel ideas which the discovery of photography has suggested is the following rather curious experiment or speculation. When a ray of solar light is refracted by a prism and thrown upon a screen, it forms there a very beautiful colored band known by the name of the solar spectrum. Experimenters have found that if this spectrum is thrown upon a sheet of sensitive paper, the violet end of it produces the principal effect; and what is truly remarkable, a similar effect is produced by certain invisible rays which lie beyond the violet, and beyond the limits of the spectrum, and whose existence is only revealed to us by this action which they exert.

"Now, I would propose to separate these invisible rays from the rest by suffering them to pass through into an adjoining apartment, through an aperture in a wall or screen. This apartment would thus become



THE FIRST CHRISTMAS — ANSON M. TITUS

THIRD PRIZE — SPIRIT OF CHRISTMAS

filled — we must not call it illuminated — with invisible rays, which might be scattered in all directions by a convex lens placed behind the aperture. If there were a number of persons in the room, no one would see the other; and yet, nevertheless, if a camera were so placed as to point in the direction in which any one was standing it would take his portrait."

More than half a century later Edgar Senior, of the Battersea Polytechnic, made a most successful portrait under what are practically those conditions. The source of dark — invisible — rays was an arc-lamp, the visible light being cut off at the lens by means of special screens invented by Prof. R. W. Wood; the necessary exposure was five minutes.

The "X-rays" discovered by Professor Röntgen, of Würzburg, in 1896, are invisible rays, and the work they will do is common knowledge.

The photographic spectrum, therefore, stretches out beyond both ends of the visible spectrum, and measures seven or eight times the length of the visible spectrum. Thus, not only do ultra-violet rays give results photographically, but the infra-red as well, although the latter are, of course, at the opposite end of the spectrum and below the visible red.

Prof. Silvanus Thompson, at the Royal Institution in 1896, illuminated a piece of apparently white paper by means of a powerful arc-lamp. A photograph was then taken of the white paper, and the negative showed an inscription written thereon. This inscription had been written upon the paper with an acid — citric or sulphuric — solution of sulphate of quinine, which, being like water in appearance, could not be seen by the eye. The camera detected it, however, because the chemical liquid absorbed the ultra-violet rays, and they were not reflected to the plate, hence they appeared black. The experiment may be made by any one, but it is important that a wet-collodion plate be used and not a modern dryplate. Dr. Gladstone made similar experiments as early as 1873, and exhibited his results at the Bradford meeting of the British Association in that year.

There are many substances that are fluorescent or that change the refrangibility of rays of light, and which have a light action upon a photographic plate. An unlighted incandescent gas-mantle gives off sufficient rays to make an image upon a photographic plate. Among other substances are radium, mineral uranite, certain salts of uranium, canary glass, alcoholic solution of chlorophyll, æsculin, tincture of stramonium seeds, and of tumeric.—*The Professional Photographer.*

Deterioration of Plates

In the course of a discussion of the Royal Photographic Society on the subject of the latent image, Mr. S. H. Wratten mentioned an interesting circumstance connected with the development of some plates which had been exposed in Central Africa, and sent home under deplorable conditions of storage. As he expected, most of them came up fogged and quite hopeless; but two of them, when laid in the dish, kept fairly clean on the top, giving no indication of development. Mr. Wratten thought that this might be due to the shutter having failed to function, or something of the kind, but he proceeded with the operations, giving them the usual time for development, and, on taking the plates out of the fixing-bath, he found to his astonishment that they yielded two good negatives which were quite printable. Both of them proved to have been exposed through the back of the plate. Mr. Wratten thought it possible that, considering the emulsion as a series of layers, deterioration might take place on the upper surface only, and he was inclined to believe that in these cases the top of the plate had gone altogether while the underneath part remained good. Deterioration in the plate might not be true throughout the emulsion.—*The Amateur Photographer.*

XUM

THE CRUCIBLE

A MONTHLY DIGEST OF PHOTOGRAPHIC FACTS

With Reviews of Foreign Magazines, Progress and Investigation

Edited by A. H. BEARDSLEY

Photography in the Theater

With color-sensitive plates and the rapid lenses now so frequently used on hand cameras, it is perfectly possible to obtain photographs in the theater, when the scene is one in which the stage-illumination is full on. There are always moments when the action is at a minimum, and the photographer who knows when one of these is coming and can get ready will find that an exposure of two or three seconds is practicable. Such an exposure will be long enough with F/3.5 or F/4 to give a very fairly exposed plate in many cases — the more so, as the lighting employed, generally, does away with anything in the nature of a deep shadow. Any one in the front-row of the dress-circle has a support for the camera all ready provided, and an interesting experiment might be made if the apparatus is available. The best work of this kind which we have seen has been done by specially sensitizing the plates by bathing them in suitable dye-solutions; but a fast panchromatic, without a screen, of course, would do nearly if not quite as well.— *Photography.*

Time and the Latent Image

Few photographic workers would have the patience to carry out researches which require a long period of years for their fulfilment; but Mr. H. J. Channon, who lectured before the Royal Photographic Society the other day, on the influence of time upon the latent image, is one of that patient order. He exposed thirteen Ilford quarter-plates in 1894, under identical conditions, giving each of them four seconds' exposure on a landscape-subject, developed one of them immediately, and placed the others in storage, packing them in tissue paper saturated with vaseline. One of these was developed at the end of two years, a second in 1898, and since then one every four years. Seven of these plates have now been developed, and the results placed side by side to show that there has been a more or less consistent retrogression. The last plate to be developed gave a very thin image in place of the dense and vigorous one of twenty years earlier. It is, nevertheless, a respectable negative from which a fair if somewhat flat print can be obtained. While the decay of density in the course of time was apparently continuous, the rate of retrogression during the last twelve years was relatively small.—*The Amateur Photographer.*

Extemporized Printing-Frames for Films

We are again indebted to R. M. F., in the *Amateur Photographer*, for a helpful suggestion to film-users. He states that it often happens that the film-worker wishes to print more negatives at one time than he has the number of printing-frames available, and so the following note on an extemporized printing-frame for films will be acceptable. All the requirements are a sheet of glass about the size of the film-negative in use, a sheet of thin card such as is found in the packets of printing-paper, the same size, and a couple of cheap letter- or paper-clips. To print, the negative and printing-paper are placed in contact in the usual way, then the glass is laid in front, and, finally, the card backing and paper slip are snapped over the whole at the top and bottom, holding all together in close contact. The "frame" may then be put out to print. When examining the paper, in order to determine how far the operation has gone, one clip only should be removed, and the print should not be examined any more than is necessary, or the slipping of negative or paper may be caused. While examining the print, the other end should be held very firmly to prevent this possibility. The above-mentioned method may be employed with glass negatives as well, only in this case the plain glass is not needed; but as film-photography is perhaps a more prolific producer of negatives than plate-photography, it is here that this method is likely to find favor.

Reversal of Image

When a plate is overexposed several hundred times, a peculiar phenomenon occurs known as the reversal of image — that is, some part or all of such a plate shows a positive instead of a negative image of the subject. In most cases, the positive obtained is flat and often badly fogged. In rare cases, the positive image is remarkably clear and brilliant. From the experiments of Abney, it is known that a preliminary exposure to diffused daylight, the use of a powerful developer and the treatment of the plate with a solution of an oxidizing-agent before exposure, facilitate reversal. It was Abney's opinion that reversal could be produced only when there was atmospheric oxidation. The addition of thiocarbamide to a well-restrained developer will help to produce reversal, especially if hydroquinone or eikonogen is used. The phenomenon of reversal is interesting; but owing to the uncertainty and lack of uniformity in manipulation, it will never be more than a photographic experiment.

Eliminating Hypo

It has been said that the best hypo-eliminator is plain water; and it has this advantage over all other chemicals put forward for the same purpose, namely, that one may be quite sure that it does not leave behind it any by-products which might be as harmful as the hypo itself would be. But for certain purposes it is important to be quite sure that the last traces of hypo are actually destroyed. In mercurial intensification, for example, a very slight quantity of hypo left in the film would give rise to staining. An excellent guaranty against this is to make use of the well-known reaction between hypo and potassium permanganate. After most of the washing is done, a very dilute solution of permanganate may be used instead of plain water. It is almost costless, so little of this cheap chemical is required. A single small crystal will answer for a gallon or more of water; as all that is necessary is to give it a pink coloration, which must not be too deep, or there is a risk of staining the negative. A few changes with this solution will wash out most of the hypo and decompose any that might be left. If a very dilute solution is used, just strong enough for the color to be seen, we may be quite sure that there is no hypo left if after having the negative lying in it for a couple of minutes the color still remains visible. A very slight trace of hypo would discharge it or change it to a yellow brown, which at that degree of dilution would seem virtually white.—*Photography.*

BEGINNERS' COMPETITION

Closing the last day of every month
Address all prints to PHOTO-ERA, Round Robin Guild Competition
383 Boylston Street, Boston, U. S. A.

Prizes

First Prize: Value $5.00.
Second Prize: Value $2.50.
Third Prize: Value $1.50.
Honorable Mention: Those whose work is deemed worthy of reproduction with the prize-winning pictures, or in later issues, will be given Honorable Mention.

A certificate of award, printed on parchment paper, will be sent on request.

Subject for each contest is ***"Miscellaneous"***; but only original prints are desired.

Prizes, chosen by the winner, will be awarded in photographic materials sold by any dealer or manufacturer who advertises in PHOTO-ERA, or in books.

Rules

1. This competition is open only to members of the Round Robin Guild. Membership, however, is free to all subscribers; also to regular purchasers of PHOTO-ERA on receipt of their name and address, for registration, and that of their dealer.

2. All Guild members are eligible in this competition provided they never have received a prize from PHOTO-ERA other than in the Beginners' Class. Any one who has received only Honorable Mention in the PHOTO-ERA Advanced Competition still remains eligible in the Round Robin Guild Beginners' Competition; but upon winning a prize in the Advanced Class, one cannot again participate in the Beginners' Class. Of course, beginners are at liberty to enter the Advanced Class whenever they so desire.

3. As many prints as desired, in any medium except blue-print, may be entered, but they must represent the unaided work of the competitor from start to finish, and must be artistically mounted. ***Subjects which have appeared in other publications are not eligible, nor may duplicate prints be sold, or entered in competition elsewhere, before Photo-Era awards are announced.*** Sepia-prints on rough paper are not suitable for reproduction, and such should be accompanied by smooth prints on P. O. P., or black-and-white paper having the same gradations and detail.

4. *Unsuccessful prints will not be returned unless return-postage at the rate of one cent for each two ounces or fraction is sent with the data.* ***Criticism on request.***

5. *Each print entered must bear the maker's name, address, Guild-number, the title of the picture and the name and month of the competition, and should be accompanied by a letter,* SENT SEPARATELY, *giving full particulars of date, light, plate or film, make, type and focus of lens, stop used, exposure, developer and printing-process. Enclose return-postage in this letter. Data-blanks will be sent upon request.* ***Be sure to state on the back of every print exactly for what contest it is intended.***

6. Prints receiving prizes or Honorable Mention become the property of PHOTO-ERA, unless otherwise requested by the contestant. If suitable, they will be published in PHOTO-ERA, full credit being given.

7. Competitors are requested not to send enlargements greater in size than 8 x 10 or mounts larger than 12 x 15, unless they are packed with *double thicknesses of* ***stiff*** *corrugated board, not the flexible kind, or with thin wood-veneer.* Large packages may be sent by express very cheaply and with indemnity against loss.

Awards — Beginners' Contest
Closed January 31, 1917

First Prize: H. B. Rudolph.
Second Prize: M. C. Still.
Third Prize: James Allan.
Honorable Mention: Frederick C. Buchholtz, J. R. Goetz, Irving S. Lovegrove, Charles D. Meservey, P. D. Miller, C. L. Snyder.

Special commendation is due the following workers for meritorious prints: Halvor A. Caum, Foster Lardner, Theodore McClintock, Geo. P. Russell.

Why Every Beginner Should Compete

THE trouble with most competitions is that they place the beginner at a disadvantage. If advanced workers be allowed to compete, beginners have little chance to win prizes, and so quickly lose interest after a few trials.

There are two monthly competitions in which prints may be entered, with prizes commensurate with the value of the subjects likely to be entered. They are: The Round Robin Guild Competition and the PHOTO-ERA Competition. The former is the better one for a beginner to enter first, though he may, whenever it pleases him, participate in the latter. After having won a few prizes in the Beginners' Class it is time to enter prints in the PHOTO-ERA Advanced Competition.

As soon as one has been awarded a prize in the PHOTO-ERA Competition, he may consider himself an advanced worker, so far as PHOTO-ERA records are concerned, and after that time, naturally, he will not care to be announced as the winner of a prize in the Beginners' Class, but will prefer always to compete in the PHOTO-ERA Competition for advanced workers. In accordance with this natural impulse, it has been made a rule by the Publisher that prize-winners in the Advanced Class may not compete in the Beginners' Class.

To measure skill with other beginners tends to maintain interest in the competition every month. Competent judges select the prize-winning prints, and if one does not find his among them there is a good reason. Sending a print which failed to the Guild Editor for criticism will disclose what it was, and if the error be technical rather than artistic, a request to the Guild Editor for suggestions how to avoid the trouble will bring forth expert information. The Round Robin Guild Departments, including those of personal counsel and criticism, form an endless chain of advice and assistance if members will connect the links.

A Tribute from a Contributor

THE renewals for subscriptions have come in very abundantly, particularly as PHOTO-ERA has been trying to maintain its well-known artistic standard, despite the greatly increased cost of production. Among the many letters that we are constantly receiving is one from a regular contributor, who writes:

"Let me tell you I enjoy the high standard you maintain in editing PHOTO-ERA — likewise the artistic form in which the material is presented — and for these reasons am pleased to be associated with it.

WILLIAM S. DAVIS."

Doing the Rest

THE amateur who is content to be merely a "button-presser" loses more than half the pleasure of photography. In the early days of amateur-photography, when a darkroom was almost a necessity — a darkened room a positive necessity — to the finishing of photographs, the beginner was justified in turning over his exposed film to a professional, who had the conveniences for doing the work. But in these days of simplified processes he loses much pleasure and valuable experience by giving over this most interesting part of the work to another. Doing one's own work is most educational.

As for expense — the money put into the necessary equipment would soon be saved on the fees previously paid the finisher. Of course, there are many conveniences that can be purchased, and as one gains experience and confidence these may be added, but the absolute necessities are few. First, is the Kodak Film-Tank of a size to take the film used. This consists of a winding-box in which the film is wound on the spool with a dark, celluloid apron, which protects it from the light. It may then be removed in daylight and placed in the solution-cup which contains the developer. This is covered tightly and the film allowed twenty minutes to develop in the solution of given strength and temperature. When the time is up the developer is poured off, the cup filled two or three times with water, to rinse off the developer, and then filled with the fixing-solution. When this has acted for the required length of time, the film is ready to remove from the spool and receive an hour's washing in running water or ten-minute baths in a tray of fresh water. As the films are coated on both sides they must be suspended by the corner from a shelf, where they may dry free of contact with anything.

Complete instructions come with the tank, and there is also a little book which in paper cover may be had for a quarter, "How To Make Good Pictures." It deals with most amateur-problems in a very efficient manner. The negatives obtained are the foundation for all subsequent processes, and too much care cannot be taken to see that they are kept free of scratches, finger-marks, etc., as the film is very easily damaged when wet. This is a matter of great importance.

The making of the prints is a less mechanical process, and one that requires a little experience to bring perfect results. It is well worth the expenditure of time and a little wasted material to master it, as the developing of a print is one of the most interesting processes in the whole photographic category. This part of the work should be carried on in the evening whenever possible, as the paper will not stand much light. A table covered with a piece of white oil-cloth is most convenient, and a shaded light that does not strike the table directly. Any light may be used for printing, but there should be some way of marking the distance of the printing-frame from the light, so that uniform results may be obtained. It is advisable to have the printing-frame a size or two larger than the films used, so that if one wishes at any time to use a mat and larger paper it can be done. This is true also of the trays used, and especially of the fixing-tray. There should be three trays — white enamel ones are very satisfactory — and they should be marked in some way so that they may always be used for the same solutions. The tray at the left should contain the developer, the center tray clear water, or an acid short-stop, and the third the fixing-bath. The ready-prepared solutions can be purchased, are safer and surer than those prepared at home, and in the quantities used by the amateur there would be little difference in expense, and greater satisfaction.

The first difficulty encountered will be probably the choice of paper. One cannot select one grade and expect it to give good results from all negatives. Azo is an inexpensive paper to use and gives excellent results. It comes in three grades, the names of which are rather misleading, the softest grade being marked "Hard," the next harder is called "Hard Medium" and the one giving greatest contrast is "Hard X." The Medium will be found to suit the average negative best, but if on trial this proves to give a print too white in the light parts and too dark in the shadows, try a print on the Hard. If, on the other hand, the Medium gives too gray a print, without contrast, try the Hard X, which will give a fair print from negatives that show hardly any image. However, avoid the use of hard paper whenever possible as harsh contrasts often spoil a picture.

With an incandescent-electric globe of 16-candle power, a negative of average density should give a print in ten or fifteen seconds at a distance of one foot. Paper will be saved by taking a sheet and cutting into small test-strips. Try one of them at fifteen seconds; if over-printed, it will come up very quickly in the developer and soon be very dark. If under-printed, it will come up slowly, and, after prolonged development, will still be pale. When rightly timed it should develop to the right shade in about two minutes, and, unless over-printed, further development will make very little change. If fifteen seconds proves too short a time, do not add one or two seconds — double it — or if too long, cut it in half. You will soon find the right time by this method, and then, if the frame is kept a definite distance from the light, all subsequent prints should be right. Prints should be rinsed quickly when development is complete, and then immersed at once and completely in the fixing-bath. A stick or rod of some sort should be kept in the fixing-tray to keep the prints in motion for a few seconds when first put in. After that, they may be left quiet for fifteen or twenty minutes, when those first put in should be taken out and washed for an hour in running water. Care must be taken that none of the fixing-bath be carried into the developer on fingers or otherwise. A very little experience and a capacity to take pains will soon make a good workman, and the pleasure obtained from the work will more than repay the effort.

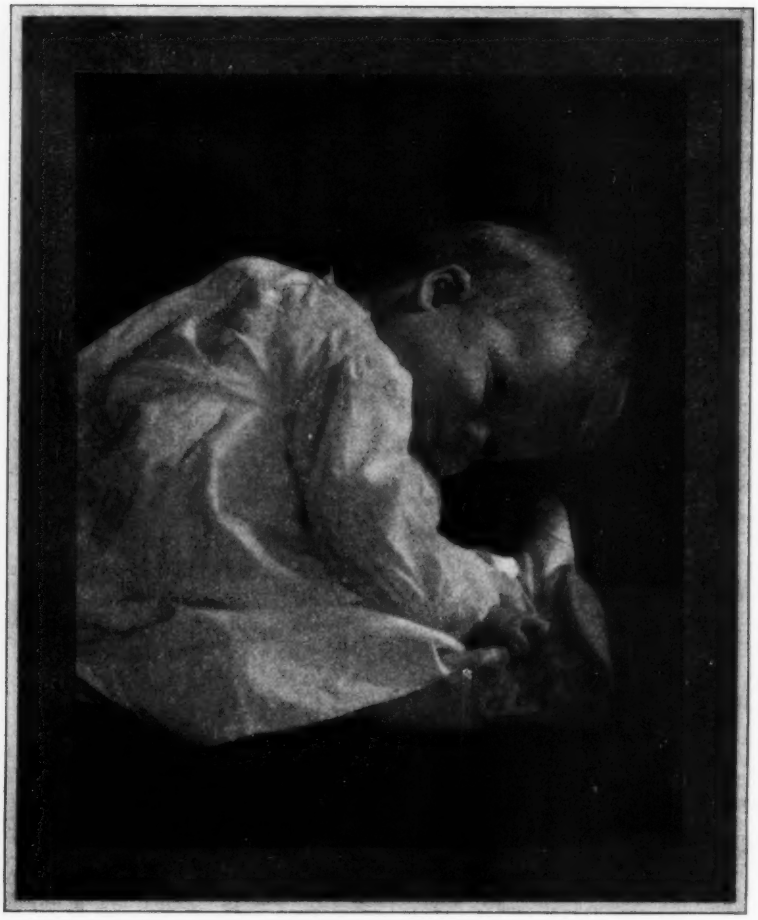
KATHERINE BINGHAM.

A Quick Method To Find the Size of Image

IF an object is one foot in diameter, how large will it appear in the finished picture? That is a rather indefinite question, but I will take it as a base from which to work. The answer I will put in the form of a fraction of an inch.

If the camera has a 4-inch focus lens, I take 4 for the numerator, and if I estimate that the distance of the object from the camera is 25 feet, I take 25 for the denominator, which gives me a fraction of $\frac{4}{25}$ of an inch — the size that the object will be in the picture. If the camera has an 8-inch focus lens, then I take 8 for numerator and, if the distance is 8 feet, I take 8 for the denominator. This gives $\frac{8}{8}$ of an inch, or one inch. Again, if the camera has a 10-inch focus lens, I take 10 for numerator and, if the distance of the object is 150 feet, I take 150 for denominator, which gives $\frac{10}{150}$ of an inch.

This gives me, by what I consider a minimum amount of figuring, the size of image produced by an object one foot in diameter. In most cases, it is easy to judge the size of the image produced by larger or smaller objects in the picture.— WILLIAM H. BLACAR.



"AH, THERE!"
H. B. RUDOLPH
FIRST PRIZE — BEGINNERS' CONTEST

Spotting Glossy Bromide Paper

It is usually considered a difficult task to spot glossy surfaced papers with any degree of success, and for any negative which when printed will require considerable spotting, one of the matte-surface papers is recommended for use. By the following method, however, it is possible to spot a glossy paper having a black and white image, and make a fairly good job of it: A small instrument, such as a pen-nib print-trimmer, having a small, sharp and pointed cutting edge, is required. This must be as sharp as it is possible to get it. It is used to roughen very slightly the surface of the paper on the particular spot where the blemish is which it is desired to remove. A very gentle touch should be used, just enough to give the paper a barely perceptible tooth, and the white spot is then toned down to match the surrounding tint by means of a soft lead-pencil. Black spots can be treated in this manner just as easily as white ones, and if too much is scraped off then it can be remedied by a touch of the pencil. With a little care, however, it is quite possible to reduce this without the use of the pencil.—*Amateur Photographer.*

A High Viewpoint

It is a common complaint against hand-camera-work that, in so many cases, the viewpoint is too low — the lens seeing the subject from about waist level. Hence, all sorts of trouble — patches of sky coming down into the picture, heads coinciding with the sky-line, and so on. Many hand-cameras cannot be used at eye level without some alteration, owing to the position of the finder; but it is possible generally to fix a little cap over the finder containing a scrap of looking-glass at an angle of 45°, so that, looking along the top of the camera, the view in the finder can be seen reflected in the mirror. The arrangement should be removable, and the hood may be prolonged for, say, an inch behind the finder. This cuts off a great deal of extraneous light, so much so, in fact, that the image can be seen more clearly than in any other way.—*Photography.*

Cleaning a Lens

It is a most important thing in photography to have a perfectly dust-free lens. Any particles of dust on the surface mean that the rays of light passing through the lens are interfered with. Many an amateur, who reads the injunction to keep his lens perfectly clean, attempts to do so without due care, and scratches the highly polished surface. To prevent this, the following rules should be observed. Take a clean sheet of white drawing-paper, and lay it on the table. Take the lens carefully apart and dust each component on each side with a fine camel-hair brush. Now pour into a clean graduating-dish the following:

Distilled water	2 ounces
Alcohol	1 ounce
Nitric acid	3 drops

Mix this solution well, and dip a tuft of filtering-cotton in it. Rub this on both sides of the lens. Dry with a piece of soft linen, and then wash over the sides with a tuft of the filtering-cotton dipped in a solution of caustic potash. Now polish with a clean and very soft chamois cloth, kept only for this purpose. (When this cloth is not in use, keep in a clean paper or cloth-bag.) After polishing, dust once more with the camel-hair brush, and carefully replace. This is far more satisfactory than the usual wiping with a silk handkerchief.—*The Amateur Photographer.*

WINTER-BROOK — M. C. STILL

SECOND PRIZE — BEGINNERS' CONTEST

Camerist —"It 's hard to keep from kissing you."
The Fair Subject —"You must be careful not to over-exert yourself."

ANSWERS TO QUERIES

Subscribers and regular readers wishing information upon any point in connection with their photographic work are invited to make use of this department. Address all inquiries to Correspondence Department, PHOTO-ERA, *383 Boylston Street, Boston, U. S. A. If a personal reply is desired, a self-addressed, stamped envelope must be enclosed.*

A. D. E.—**Sometimes an enamel-tray will cause trouble,** when it has gotten chipped or has the enamel worn off in spots. The exposed iron coming in contact with the developing-solutions may stain or otherwise injure the prints or negatives. Such trays should be recoated with bath-tub enamel, the broken places first being filled with litharge mixed to a paste with glycerine and plaster of Paris.

Without knowing the origin of this purple color in the window-panes, many persons introduced such windows in their homes about 1876, and this old violet glass became somewhat of a vogue. It must be remembered that there is a difference in cause and sentiment regarding this old violet glass as now seen in some of these old private residences.

E. S.—**Transparencies are not difficult to make** if one is at all accustomed to photographic processes. They are simply prints on glass, and made after the same manner. It is best to use a rather slow plate, as it is easier to manipulate and gives good contrast. Place your negative and plate film to film, in a printing-frame, and expose to artificial light, at a distance of three or four feet, for a few seconds (with 16 C. P. electric light, and an average negative, possibly five to ten seconds), then develop in a good contrast developer such as is given with the plate chosen. Special transparency plates are on the market, coated on ground-glass. If these are used, all that is necessary to show them is a plain glass over the face for protection when put in the binding-frame. If the plate is clear glass it should be bound with a ground-glass.

ALONG THE LAKE SHORE — JAMES ALLAN

THIRD PRIZE — BEGINNERS' CONTEST

F. A. C.—**With regard to the violet panes** which correspondents have noticed in some of the old residences of Boston and other Eastern cities, I will give the explanation of Mr. Ralph Cram, the eminent Boston architect:

"In the year 1800, or at all events when this particular group of houses was being built, a ship-load of glass came over from England, which was perfectly clear when it arrived, but, shortly after it was set in the windows, some chemical action took place which turned the glass purple. It is supposed that some chemical or other became mixed with the materials when the glass was manufactured, and that under the influence of the sun the glass slowly changed its color."

H. B.—**An easy way to title negatives** or place any inscription on a print which can be shown in white letters, is this: Take a piece of Kodaloid, which is a very thin transparent celluloid, and holding it with the plate toward the light, locate the place where you wish the writing to appear. Then take the Kodaloid, and on the side which will come next the plate do your printing or writing. When the two are fastened together at the edges, you have a good protection for your negative, and the title will print correctly. A good medium is ink with lamp-black dusted in.

XUM

PRINT-CRITICISM

Address all prints for criticism, enclosing return-postage at the rate of one cent for each two ounces or fraction thereof, to Correspondence Department, PHOTO-ERA, *383 Boylston Street, Boston, U. S. A. Prints must bear the maker's name and address, and be accompanied by a letter, sent separately, giving full particulars of date, light, plate or film, stop used, exposure, developer and printing-process.*

F. Z.— In your picture, "Check," representing a human skull on a chess-board, you have a very effective theme. For a reason that is not apparent, you have put the skull entirely out of focus, also the pawns, except two or three, which are nearest the camera. The corner of the table-cloth nearest the camera is out of focus and out of drawing. Only parts of the entire picture are in focus, which detracts from the artistic and technical quality of the picture. Also, the light shines very strongly on the corner of the table-cloth nearer the camera, and the scattered light on the pawns and the skull prevents the picture from possessing the element of unity so essential in a satisfactory composition.

A. F.— The picture of the boy, leaning over the stone-wall of a pond and holding in his hand the stem of a leaf, is not convincing as a pictorial theme. The subject is evidently posing and engaged in no pronounced activity. The picture is also badly focused, and the receding and curving line of the edge of the basin is indistinct, but brightly lighted, hence very disturbing in the arrangement of the picture. It detracts very materially from the figure of the boy, the major part of whom only is included in the picture-space. A subject of this kind requires more space, either on a larger plate or a greater distance from the camera.

F. C. O.— The picture of the young woman, engaged in writing a letter and facing the camera, consists of masses of white, which are paper, stationery and book lying on the table in front of the model; the latter's white costume and the bright light on her hands and arms and face also detract. The idea for a picture is excellent, but the manner of carrying it out is far from artistic. The fault lies chiefly in the white costume of the model and the white objects on the table. The illumination seems to be too strong. This exceedingly difficult subject requires considerable experience to transform into a successful and satisfying picture.

W. B. B.— Your "portrait" of a baby has several faults. First of all, the baby's face is too dark, almost black. It is a *white* baby, and not *colored*. One might easily arrive at the latter opinion, judging by your picture. The fault seems to be *underexposure*. Had it been better timed, the face would be light and there would be also more gradation and character in the drapery. The background is all right, except for the white streak, which easily could have been eliminated by local reduction in the original film-negative. The dark pillow is also a little somewhat out of place, as it does not harmonize with the white costume of the child.

F. D. M.— Your at-home portrait is considerably underexposed, the dark costume being intensely black, and the hands and face in a very high key, with no correct color-value. This is the fault of such portrait work done indoors. It is done largely to avoid motion of sitter, and unless the light is very favorable, it may be well to consider the return to the much-abused, old-fashioned headrest, which, if used intelligently and carefully, is not a bad contrivance, after all.

J. I.— The composition in your at-home portrait is very faulty, also the lighting. Please remember that simplicity is one of the main things to be considered in portraiture. The background should not be too animated or complex, but take its proper subservient place in the composition. The lighting should be so managed as to yield a round and plastic effect of head and hands. Amateur lighting is generally very flat. Such white accessories as hair-ribbons on children are objectionable. White accessories in dress of adults, such as neckties, cuffs, collars, shirt-fronts, vestees, embroidery — although not objectionable outside the domain of photography — become great sources of irritation in portraiture, and require much skill and experience to subdue. This is done better by lighting, rather than by after-treatment on the negative or print. White or brightly lighted objects form stumbling-blocks even to the professional photographer.

S. F. L.— The road-view submitted has every appearance of having been taken with a very short-focus lens. The perspective of the road is greatly exaggerated; that is to say, it grows narrow too abruptly. The effect can be minimized by trimming one inch from the foreground and right side. This removes the widest part of the road and also improves the spacing.

C. D. S.— Your technical quality is very good here but you have a most incongruous collection of objects. The grove of trees is attractive and well shown, but why the women in boudoir caps, seated on what appears to be a lounge. The piece of furniture and the costumes are entirely out of harmony with the background.

E. E. P.— Your snow-values are excellent, but the telephone-pole at the right is the most prominent thing in the picture. If a view-point about opposite this pole had been chosen the next pole would have cut against the group of trees and been inconspicuous. As it is you sacrifice very little by trimming off.

S. W. S.— A well-lighted and posed head, but the background of dotted muslin is entirely too distracting and prominent. This same pose with a quiet background would have been 100 percent better.

M. A. P.— A fine mountain-view greatly marred by the auto so prominently placed in the foreground. It is impossible for the eye to get over that large dark mass to look at the view beyond. If it was necessary to include the car, it should have been farther away, and in a position to cut against the dark foliage instead of the light foreground. Attention to details is important.

F. C. J.— The picture of the child running along the street is very successful. The action is well caught and the expression is very childlike and natural. The one fault is the spacing. The little fellow is about to vanish from the scene. There is not enough space in front of the moving-figure. If the ample space at the back had been in front, the effect would have been much better.

M. C.— If the scratches to which you refer are on the emulsion side, and are entirely through the emulsion, dissolve a little gelatine in hot water, to which a drop or two of carbolic acid has been added, and coat over the scratch. When this is dry, you have a coating of gelatine which will allow you to work up the proper density with the retouching-varnish and pencil. If the scratches are on the glass-side, mix flour of emery to a thick paste in alcohol and rub on the scratch with a flannel-cloth.

J. I. C.— The ornate wicker chair is the most emphatic thing in your "Outdoor Portrait." The vignette on this subject is also inappropriate. The body of the chair gives the impression of floating in mid-air. The white vignette is only properly used with a white background, as with dark grounds the line is harsh and unpleasant, unless remarkably well manipulated.

XUM

Calculated to give Full Shadow-Detail, at Sea-Level, 42° N. Lat.
For altitudes up to 5000 feet no change need be made. From 5000 to 8000 feet take ¾ of the time in the table. From 8000 to 12000 feet use ½ of the exposure in the table.

Exposure for average landscapes with light foreground, river-scenes, light-colored buildings, monuments, snow-scenes with trees in foreground. For use with Class 1 plates, stop F/8, or U. S. 4. For other plates, or stops, see the tables on the opposite page.

*These figures must be increased up to five times if the light is inclined to be yellow or red.
†Latitude 60° N. multiply by 3; 55° × 2; 52° × 2; 30° × ¾.
‡Latitude 60° N. multiply by 2; 55° × 2; 52° × 1½; 30° × ¾.
¶Latitude 60° N. multiply by 1¼; 55° × 1; 52° × 1; 30° × ½.
§Latitude 60° N. multiply by 1¼; 55° × 1; 52° × 1; 30° × ½.

HOUR	MONTH AND WEATHER																					
	JAN., NOV., DEC. †					FEB., OCT. ‡					MAR., APR., AUG., SEPT. ¶					MAY, JUNE, JULY §				
	Bright Sun	Hazy Sun	Diffused Light	Dull	Very Dull	Bright Sun	Hazy Sun	Diffused Light	Dull	Very Dull	Bright Sun	Hazy Sun	Diffused Light	Dull	Very Dull	Bright Sun	Hazy Sun	Diffused Light	Dull	Very Dull
11 A.M. to 1 P.M.	1/32	1/16	1/8	1/4	1/2	1/32	1/16	1/8	1/4	1/2	1/50	1/25	1/12	1/6	1/3	1/60	1/30	1/15	1/8	1/4
10–11 A.M. and 1–2 P.M.	1/25	1/12	1/6	1/3	2/3	1/25	1/12	1/6	1/3	2/3	1/40	1/20	1/10	1/5	1/2	1/60	1/30	1/15	1/8	1/4
9–10 A.M. and 2–3 P.M.	1*/12	1*/6	1*/3	2*/3	1*	1/16	1/8	1/4	1/2	1*	1/40	1/20	1/10	1/5	1/2	1/50	1/25	1/12	1/6	1/3
8–9 A.M. and 3–4 P.M.						1*/5	1*/2	1*	1 1/2*	3*	1/30	1/15	1/8	1/3	2/3	1/30	1/15	1/8	1/4	1/2
7–8 A.M. and 4–5 P.M.											1/20	1/10	1/5	1/2	3/4	1/20	1/10	1/5	1/3	2/3
6–7 A.M. and 5–6 P.M.											1*/15	1/8	1*/2	3*/4	1*	1/15	1/8	1/4	1/2	3/4
5–6 A.M. and 6–7 P.M.																1*/10	1*/5	1*/3	2*/3	1 1/2*

The exposures given are approximately correct, provided the shutter-speeds are accurately marked. In case the results are not just what you want, use the tables merely as a basis and increase or decrease the exposure to fit the conditions. Whenever possible keep the shutter-speed uniform and vary the amount of light when necessary by changing the stop. Focal-plane shutters require only one-third of the exposures stated above.

SUBJECTS. For other subjects, multiply the exposure for an average landscape by the number given for the class of subject.

1/8 Studies of sky and white clouds.

1/4 Open views of sea and sky; very distant landscapes; studies of rather heavy clouds; sunset- and sunrise-studies.

1/2 Open landscapes without foreground; open beach, harbor- and shipping-scenes; yachts under sail; very light-colored objects; studies of dark clouds; snow-scenes with no dark objects; most telephoto-subjects outdoors; wooded hills not far distant from lens.

2 Landscapes with medium foreground; landscapes in fog or mist; buildings showing both sunny and shady sides; well-lighted street-scenes; persons, animals and moving objects at least thirty feet away from the camera.

4 Landscapes with heavy foreground; buildings or trees occupying most of the picture; brook-scenes with heavy foliage; shipping about the docks; red-brick buildings and other dark objects; groups outdoors in the shade.

8 Portraits outdoors in the shade; very dark near objects, particularly when the image of the object nearly fills the plate and full shadow-detail is required.

16 to 48 Badly-lighted river-banks, ravines, glades and under the trees. **Wood-interiors** not open to the sky. **Average indoor-portraits** in a well-lighted room, light surroundings.

PLATES. When plates other than those in Class I are used, the exposure indicated above must be multiplied by the number given at the head of the class of plates.

For Perpetual Reference

As all the figures in the table opposite are based upon the use of stop F/8, or U. S. 4, it does not appear here among the ratios for other stops.	U. S. 1	F/4	× 1/4
	U. S. 2	F/5.6	× 1/2
	U. S. 2.4	F/6.3	× 5/8
	U. S. 3	F/7	× 3/4
	U. S. 8	F/11	× 2
	U. S. 16	F/16	× 4
	U. S. 32	F/22	× 8
	U. S. 64	F/32	× 16

For other stops multiply by the number in the third column

Example

The factors that determine correct exposure are, first, the strength of light; second, the amount of light and dark in the subject; third, speed of plate or film; fourth, the size of diaphragm used.

To photograph an average landscape with light foreground, in Feb., 2 to 3 P.M., bright sunshine, with plate from Class 1, R. R. Lens, stop F/8 (or U. S. 4). In the table look for "Hour," and under the column headed "Bright Sunshine," note time of exposure, 1/16 second. If a smaller stop is used, for instance, F/16, then to calculate time of exposure multiply the average time given for the F/8 stop by the number in the third column of the table for other stops, opposite the diaphragm chosen. The number opposite F/16 is 4. Multiply 1/16×4=1/4. Hence, the exposure will be 1/4 second.

For other plates consult the table of plate-speeds. If a plate from Class 1/2 be used, multiply the time given for average exposure, F/8 Class 1, by the number of the class. 1/16×1/2=1/32. Hence, the exposure will be 1/32 second.

Speeds of Plates on the American Market

Class-Numbers. No. 1, Photo-Era. No. 2, Wynne. No. 3, Watkins

Class 1/3, P. E. 156, Wy. 350, Wa.
Ilford Monarch
Lumière Sigma
Marion Record
Seed Graflex
Wellington Extreme

Class 1/2, P. E. 128, Wy. 250, Wa.
Ansco Speedex Film
Barnet Super-Speed Ortho.
Central Special
Cramer Crown
Eastman Speed-Film
Hammer Special Ex. Fast
Imperial Flashlight
Imperial Special Sensitive
Seed Gilt Edge 30
Wellington 'Xtra Speedy

Class 3/4, P. E. 120, Wy. 200, Wa.
Barnet Red Seal
Cramer Instantaneous Iso.
Defender Vulcan
Ensign Film
Hammer Extra Fast, B. L.
Ilford Zenith
Paget Extra Special Rapid
Paget Ortho. Extra Special Rapid

Class 1, P. E. 111, Wy. 180, Wa.
American
Ansco Film, N. C.
Atlas Roll-Film
Barnet Extra Rapid
Barnet Ortho. Extra Rapid
Central Comet
Imperial Non-Filter
Imperial Ortho. Special Sensitive
Kodak N. C. Film
Kodoid
Lumière Film and Blue Label
Marion P. S.
Premo Film-Pack
Seed Gilt Edge 27
Standard Imperial Portrait
Standard Polychrome
Stanley Regular
Vulcan Film
Wellington Anti-Screen
Wellington Film
Wellington Speedy
Wellington Iso. Speedy
W. & W. Panchromatic

Class 1 1/4, P. E. 90, Wy. 180, Wa.
Cramer Banner X
Cramer Isonon
Cramer Spectrum
Defender Ortho.
Defender Ortho., N.-H.
Eastman Extra Rapid
Hammer Extra Fast Ortho.
Hammer Non-Halation
Hammer Non-Halation Ortho.
Seed 26x
Seed C. Ortho.
Seed L. Ortho.
Seed Non-Halation
Seed Non-Halation Ortho.
Standard Extra
Standard Orthonon

Class 1 1/2, P. E. 84, Wy. 160, Wa.
Cramer Anchor
Lumière Ortho. A
Lumière Ortho. B

Class 2, P. E. 78, Wy. 120, Wa.
Cramer Medium Iso.
Ilford Rapid Chromatic
Ilford Special Rapid
Imperial Special Rapid
Lumière Panchro. C

Class 3, P. E. 64, Wy. 90, Wa.
Barnet Medium
Barnet Ortho. Medium
Cramer Trichromatic
Hammer Fast
Ilford Chromatic
Ilford Empress
Seed 23
Stanley Commercial
Wellington Landscape

Class 5, P. E. 56, Wy. 60, Wa.
Cramer Commercial
Hammer Slow
Hammer Slow Ortho.
Wellington Ortho. Process
W. & W. Process Panchromatic

Class 8, P. E. 39, Wy. 30, Wa.
Cramer Contrast
Cramer Slow Iso.
Cramer Slow Iso. Non-Halation
Ilford Halftone
Ilford Ordinary
Seed Process

Class 100, P. E. 11, Wy. 3, Wa.
Lumière Autochrome

XUM

OUR ILLUSTRATIONS

WILFRED A. FRENCH

THE front-cover decoration this month demonstrates anew the skill of a versatile and successful worker, H. B. Rudolph, who, having won first prize in the so-called "Beginners' Competition," and several others previously, will hereafter be found as a participant in the advanced workers' class. This is according to PHOTO-ERA custom; and after a worker has captured three first prizes in that department, he will be excused from further activity as a pictorial competitor in PHOTO-ERA; at least, he will be tendered a rest for a year or two, and re-admitted at the discretion of the Publisher.

As to Mr. Rudolph's picture — which, as the most successful entry in this month's secondary competitive class, appears also on page 196 — it wins our affections by reason of the simple charm which a scene of child-life, such as this, never fails to exert. The fond parent, if an amateur photographer, is apt to be more than usually observant, and he will discover virtually endless opportunities in the home, more than in a professional studio, to record those delightful and spontaneous little ways that mark the initial stage of man. Unfortunately, few of baby's irresistible caprices are capable of strictly artistic interpretation, but if the camerist of the family be on the alert, or if baby will "perform" in accord with the necessary preparations, good results may be expected. In any event, Mr. Rudolph made the exposure at the psychological moment, and produced a picture of striking merit. In addition to the alluring attitude of the little "sitter," the technical features — modeling, illumination and values — are brilliantly successful. Data: February, 10 A.M.; bright light from two large windows; 5 x 7 Century camera; 7-inch Euryplan lens, at F/4.8; $\frac{1}{2}$ second; 5 x 7 Eastman Portrait-Film; hydro-metol, tray; enlarged print on Montauk Bromide No. 7.

The present supreme quality of Mrs. Cassidy's work is suggestion. For some time a technician of brilliant ability, this worker has of late given greater prominence to the subjective side of her camera-creations. This property was noticeable in her "Killarney Roses," which embellished the front cover of the June, 1916, issue, but is present in a greater degree in "Silent Homage," the frontispiece of this issue. The spiritual significance of this picture — dedicated to the approaching Easter season — of a new life and the Resurrection, are presented here with dignity and devotion. As a composition, the picture is conspicuous for simplicity, grace and spontaneity of design. It certainly merits study and emulation. Data: May, 11 A.M.; 5 x 7 Graflex; 8¼-inch Goerz Dagor, at full aperture; 5 x 7 Standard Orthonon; enlarged on 8 x 10 Eastman Rough Bromide, with R. & S. Semi-Achromatic Doublet.

Among the most interesting genre-pictures shown at the annual competitive exhibition of the Boston Y. M. C. U. Camera Club, last December (see reference to this event in our January issue), was one of a fishmonger, by Chester Grillo, reproduced on page 163. The scene portrays action — no unkind suggestion — and excellent, orderly composition, without much evidence of preparation. Data: October, 4 P.M.; bright sunlight; 3¼ x 4¼ Auto Graflex, with 5-inch B. & L. Ic Tessar; stop, F/4.5; Hammer Non-Hal. plate; pyro-acetone; $\frac{1}{25}$ second; enlarged on Wellington Cream Crayon Rough.

In "The Top of the Hill," page 165, one notes a narrow, interesting footpath coursing its irregular way down the hill, accompanied by a barbed-wire fence, and an old wooden fence and stone wall, all lines converging towards the vanishing-point. With the old apple-tree, at the right, we have a commonplace subject, but one filled with true pictorial interest. Data: May, 11 A.M.; 8 x 10 view-camera; 13-inch F/8 symmetrical lens, at F/16; graded color-screen; sunlight and clouds (threatening); 2 seconds; plate; Duratol; 5 x 7 contact print on P. M. C. Bromide.

"Scarborough Bridge," page 166, is one of the many picturesque bits in "Franklin Park," the public recreation-ground *par excellence* of Greater Boston. The original print of this popular subject was hung in the Y. M. C. U. Camera Club exhibit already referred to, but failed of official recognition. The general effect of this picture is so pleasing that one fails to notice at once that the arch of the bridge occupies the center of the picture-area, and that, possibly, the artistic result would be improved by the removal of one inch of space from top or bottom. Data: October, 4 P.M.; 5 x 7 Hammer Ortho Double-Coated; P. & S. Semi-Achromatic, 12-inch focus, at stop F/6; $\frac{1}{5}$ second.

Well-lighted and well-modeled, the little girl, posing as "Our Cherub," page 172, wins our admiration. Innocently gazing into the goldfish-bowl, she demonstrates the truth that the well-formed body of a child, if posed artistically and retaining the correct flesh-values, is a worthy subject for the camera. Data: Professional studio, 14½-inch Heliar, at F/6.8; April, 1916, P.M.; cloudy day; 1¼ seconds; Cramer Banner; pyro; print on Artura C.

Scenes differing very little from the one shown on page 173 used to be seen in the villages of Picardy, where now only ruin and desolation prevail. In gazing on this modest little tailpiece, let us ponder long, oh, so long, before we participate lightly or flippantly in the jingo-talk, the topic of the hour. Data: October, 4 P.M.; good light; 3A Graflex; Zeiss lens, at F/6.3; 3-time color-filter; $\frac{1}{15}$ second; Eastman Non-Curling film; enlarged on Soft Cyko.

The view of San Antonio River, Texas, page 175, is typical of that locality, which is said to be rich in pictorial possibilities. Mr. Hall's picture suggests this picturesque quality and, after a little judicious trimming, cannot fail to claim artistic consideration. Data: November, 1916, at 4 P.M.; Icarette camera, 2¼ x 2¼; Heckla Anastigmat, at F/8; $\frac{1}{50}$ second; Brownie film; Eastman Universal developer; part of negative enlarged on Artura Carbon Black.

In his article on night-photography, Mr. Sutter has shown convincingly how artistic compositions may be obtained. Note his series of exceedingly attractive illustrations, pages 176 to 179, displaying admirable gradations and transparent shadows. Data: "Turning Night into Day"— February 10, 8.20 P.M.; Voigtländer Collinear, III, at F/6.8; Seed Graflex plate; 4 minutes. "The Quiet Street"— February 10, 8.30 P.M.; 5 minutes; rest as preceding. "Christmas Eve"— December 25, 7.15; there was no daylight, and it was drizzling; Darlot R. R. lens, at U. S. 8; 7 minutes; Seed 30. "Eight Inches by Morning"— 7.10 A.M.; 5 minutes; rest as preceding. "Dinner-Party"— Voigt-

länder Heliar, at F/6.8; Seed Graflex plate; March 5, 8.45 P.M.; 3 minutes; at F/8. "The Apartment House" (page 176) — January 22, 7.50 P.M.; Collinear, at F/6.8; 8 minutes; Standard Orthonon.

A much-admired portrait in the P. A. of A. Salon of last year was J. D. Strickler's "Mrs. G." Lighted conventionally, to be sure, the portrait possesses an unusual degree of soundness or plastic effect. The poise of the head, the management of the drapery and the artistic proportions merit unstinted praise. All bears the impress of a worker experienced and at home in his chosen field. Data: Made in professional studio; 8 x 10 Verito lens; Hammer Red Label plate; pyro, tank.

Advanced Workers' Competition

THE "Spirit of Christmas" brought out many efforts along purely conventional lines. That was to be expected. Nevertheless, this theme will always be associated with the Christmas-tree, do what you will. In several instances, however, the worker left the beaten track and entered the realm of suggestion, permitting the beholder to engage in flights of fancy. Whenever the theme can be pictured convincingly in this fashion, it should be done; yet the objective, the obvious, is still the preferred method of portrayal.

All that can be consistently included in the pictorial design, without crowding, has been attempted by R. J. Morrow, page 189. Here the idea has been expressed with the aid of maternal love and affection, and the traditional accessories of the glad season. With artistic judgment, the tree has been placed in the background, and the interest centers in the group — mother and child — in the foreground, in front of the fireplace. The little one is being told the story of the Christ-child, or the coming of Santa Claus. The entire scene is suggestive of the theme intended to be pictured, and the means of expression has not been made too obvious. Data: January 3, 1917, evening; 1,000 half-watt* blue globe lamp and 45-degree reflector, light diffused and 10 to 15 feet from subject; T. & P. half-plate; 9-inch Verito, at F/8; Wellington & Ward Extra Special Sensitive; M. Q.; 1½ to 2½ seconds; enlarged on Azo B; Amidol. [*This means 2 c. p. to every watt of power.—ED.]

The totally imaginative way to treat the subject, as has been mentioned above, has been pictured by Bertran F. Hawley, page 191. Naturally, the designation gives the clue to the meaning of the picture. A material title, such as "Lost in the Snow," or "Admiring the Snow," would have caused the picture to be rejected; but now the beholder's interest is aroused and, together with the wayfarer, is busy with the thought of giving and making some loved ones happy. Pictorially, too, Mr. Hawley's effort is praiseworthy. The tones of light and shadow are extremely beautiful and disposed with artistic skill. Although made in mid-winter, and amid brilliant sunlight, there is not one harsh note in the entire composition. The figure is placed with excellent judgment, and the values throughout are admirable in their fidelity. Data: Late December, 1916, noon; bright sunshine; B. & L. 6¼-inch; F/6.3 anastigmat, used at full opening; 4 x 5 Wellington Extra Speedy plate; pyro-acetone; $\frac{1}{25}$ second; enlarged on Wellington Smooth Bromide; slight diffusion by separation of front glasses in a Cooke F/5.6 lens.

A pleasing version of the subject is by Anson M. Titus, page 192. With an eye to correct composition, the artist has placed the Christmas child well towards one end of the picture-space, and appropriate gifts, well arranged, toward the other. The lighting of the entire scene is well diffused, creating no undue contrasts. Data: F. P. Kodak, No. 3; B. & L. Zeiss Tessar, series IIB, 5¼-inch focus; stop, F/6.3; bright sun outside; ½ second; Wellington Extreme; pyro, tank; enlarged Cyko print.

Beginners' Competition

"Ah, there!" the first-prize picture in this competition, has been referred to at length at the beginning of this department. M. C. Still has been a faithful participant in these competitions, and has now emerged with a second prize to his credit. His picture, "Winter-Brook," page 197, is a well-ordered, though not altogether original composition; yet it is not commonplace. By reason of the wooded background, the little stream with its snow-covered banks comes into prominence, and, owing to the well-modulated lights and shadows on the snow and water, there are no violent contrasts. This presence of excellent technique contributes very materially to the artistic success of the task, and Mr. Still is to be congratulated. Data: 5 x 7 Premo; 7½-inch Cooke, series 3a; 2 P.M.; ½ second; 5 x 7 Eastman Portrait-Film; pyro, tray; B. & J. 3-time ray-filter; good light; 5 x 7 Normal Cyko Studio print; 6 seconds by Welsbach light; hydro-duital developer, made up according to Ansco M. H. formula.

Although of almost equally divided interest, James Allan's "Along the Lake-Shore," page 198, commands attention because of its pictorial beauty. Had he either lowered or raised his camera, just before he made the exposure, he could have obtained a seascape with sky and sea of very unequal proportions, hence more consistent artistically. He can produce the same effect by trimming the resultant print, or, what, in a large number of prints, would be economical, use narrower sheets of paper. But trimming a print, as an afterthought, is not exactly equivalent to composing the picture. Data: October 5, 1915, 8.30 A.M.; bright light; 4 x 5 Reflex; 7-inch Goerz Celor; stop, U. S. 8; Ideal ray-filter; ⅛ second; Imperial S. S. Ortho Backed; Duratol; 6½ x 8½ enlargement on Wellington Carbon Bromide.

The Tone of the Background

FOR a long time I could not understand how some of the home-portrait workers obtained the fine backgrounds that appeared so naturally subdued in their pictures. When I tried to do this kind of work, my backgrounds came out very light, with the figures in the wallpaper and other details very strong and obtrusive. Just by accident I discovered that it was all a matter of either cutting off the light that illuminated whatever was behind the sitter, or, if that was not possible, selecting such a position for the subject that the room behind was not too brilliantly lighted. If one wishes an extreme example of what can be achieved in this direction, let him pose his subject just outside an open door leading into a wood-shed, or some such unpromising scene, that is dimly lighted. Despite the fact that the eye can see a jumble of undesirable material for a portrait background, the picture will come out with a fine black background having excellent atmospheric effect. Seat the subject back in the room, open all the wood-shed windows and admit a flood of light, and all the objectionable surroundings will be painfully in evidence.— A. S. D., in *Camera-Craft*.

At the Camera Club

"MY husband is very devoted; he anticipates my every wish."

"So does my husband, mine; whenever he thinks I am going to ask him for money to buy an ounce of metol, he lights out."

XUM

ON THE GROUND-GLASS

WILFRED A. FRENCH

Those Open Mouths

THE February editorial, "Open Mouths in Portraiture," seems to have raised a storm of protests among my critical readers, inasmuch as they regarded the charming picture of a young girl, on the front cover, as a direct contradiction of my statement regarding the open mouth in portraiture. Among those who have taken issue with me on this question is the erudite "Listener," of the *Boston Evening Transcript:*

"The ever-didactic editor of PHOTO-ERA inveighs against the open mouth in portraiture, or parted lips, especially common in portraits of young women. He will have it that it suggests 'mouth-breathers,' or adenoids, or catarrh — not bearing in mind the charming and famous portraits of Romney, Sargent and other masters of portraiture, with parted lips. As if to show that his strictures are not to be taken seriously, the very same number of this excellent, always painstaking and instructive Boston magazine has for its main pictorial feature, and ornamental cover, a picture of a pretty girl with open mouth, but evidently in the best of blooming good health!"

The point is well taken, and the list of artists who painted handsome women with the lips parted could be easily extended. But does this circumstance preclude the suggestion that eighteenth-century women were as subject to the same respiratory complaints and discomforts as those of the present day? It seems hardly necessary to point out that in certain cases the female upper lip is so short that to close the mouth would result in a strained and unnatural expression; but if the sitter has a plausible excuse to pose with lips parted, the artist should refrain from introducing any suggestion of mental weakness into the portrait. I wonder what Romney had in his mind when he painted the well-known portrait of buxom Lady Hamilton agape — in the costume of a country-lass and seated on a balcony. Moreover, what a portrait-painter can accomplish is not always within the power of the master-photographer. But if the Editor wished to escape from the imaginary though not altogether unpleasant dilemma, he could have set up the argument that "The Vision" was a genre rather than a portrait.

This brings us to the accepted definition of a genre — a figure or portrait used as the basis for pictorial treatment. This would remove the picture of the young girl in question from the realm of strict portraiture, for her expression of mingled wonder and surprise — although interpreted with fine artistic skill — does not seem to suggest a characteristic likeness. A somewhat unusual pictorial quality dominates the picture, and makes a stronger appeal to the lover of the beautiful than, possibly, a more reposeful and serious, though doubtless pleasing, aspect of an obviously interesting face.

A Little Dictionary Is a Useful Thing

IT was Pope who said, "A little learning is a dangerous thing;" yet a smattering of a foreign tongue has often proved a "life-saver." In any event, it is generally advisable for an editor, totally unfamiliar with modern languages, to verify foreign words or phrases with the aid of a dictionary before permitting the printer to proceed. Due allowance for slips!

In looking through a cotemporary photographic journal recently, I came to an article on posing. The illustrations were excellent; but the names of some of the artists were astounding, and made me laugh.

Steiglitz, instead of Stieglitz, was not so bad; but "Nachfolger" (successor) was funny, and "Genre," "Breveté" (patented) and "Verboten" (prohibited) capped the climax. The poor editor had copied what happened to be on the back of each photograph in the belief that it was the name of the photographer.

Bird-Photographers, Be Merciful!

IT is passing strange that some amateurs, themselves men of intelligence and common sense, will go to a lot of trouble to make pictures of song-birds — nestling, alighting and feeding the young — which results, generally abominably wretched from every possible viewpoint, they send to PHOTO-ERA, fully expecting that they will be accepted with alacrity, and promptly published at the Publisher's regular cash-rates.

I have had recently the unhappy experience of receiving, and promptly returning, several lots of the most awful-looking bird-pictures imaginable. In nearly every case the bird, the nest and the surrounding branches and twigs were photographed as a confused, inextricable mass, and so badly lighted and underexposed that I wondered what on earth prompted these unhappy mortals to waste their time in such totally unsuccessful efforts, and, worst of all, to send them to a photographic journal perfectly confident that they would be published and paid for. And the accompanying stories! — written in inexcusably bad English, giving information of little or no practical value — were no better than the photographs.

I sincerely hope that camerists eager to engage in bird-photography will read these lines and then pause. The sport is an interesting one, but requires adequate preparation, executive skill, patience and perseverance.

A Case for the Expert Repairer

A WELL-KNOWN photo-supply house, in Toledo, Ohio, received the following letter recently:

> "We are sending you, by parcel-post, a shutter. We should say, an opener, as it does not shut. It is an Auto-Shutter, so called because it ought to shut. From the price we paid for it, it ought to be a regular Auto and not a Ford. We tried to have it fixed here, in St. Louis, but we understand 'we can do better in Toledo.' The local repairer held various post-mortems over this thing; but came to no other conclusion than that it did n't work.
>
> "You will note it has two curtains. One goes up and one down — sometimes. Sometimes they pass each other without speaking, but as a rule they stop and shake hands. But more generally, they are probably afraid of each other, as, when they are within hailing distance, both stop, and no amount of curtain-speeches of the blankest kind can make them change their mind. Now we always thought a lot of this shutter and would rather use it than our other shutter, which scares the kids."

EVENTS OF THE MONTH

Announcements and Reports of Club and Association Meetings, Exhibitions and Conventions are solicited for publication

Los Angeles Salon

THE Southern California Camera Club announces a salon, open to all pictorial photographers, to be held May 11 to 26 inclusive, 1917. A committee of three disinterested artists will pass upon the pictures to be hung. No prizes will be given; but such a high standard of pictorial excellence will be maintained that admission to the salon of selected pictures will constitute a distinction.

Although this is the first activity of large scope undertaken by the Southern California Camera Club — organized only a little more than a year ago — it is anticipated that this salon will represent the highest standard of pictorial ideals in photography. This club has already held an unusually successful local exhibition of local pictorial work, and this, with the fact that several of the club-members have exhibited work in all the well-known salons in the past, assures intending contributors that no detail will be ignored to place this exhibition among the notable photographic events of the year.

Although few ironclad rules have been adopted by the committee in charge, it is preferred that the largest dimension of mounts does not exceed thirty inches. However, prints will be debarred only because, in the opinion of the judges, they do not represent the highest standard of pictorial qualities. Prints must be in the hands of the print-committee before May 1. Application for entrance-blanks should be made to Miss O. P. Close, 313 West Third Street, Los Angeles, California.

German Photo-Experts Lost to Science

SEVERAL issues of the Vienna monthly photographic journal, *Photographische Korrespondenz*, covering the period from August, 1915, to November, 1916, have reached the offices of the *British Journal of Photography*.

Among many items of interest were the obituary notices of a number of technical or scientific workers in photographic and photo-mechanical circles. The chief of these are as follows:

The death of Professor Karl Schwarzschild took place May, 1916. For several years he had been director of the Potsdam Astro-physical Observatory. In scientific photography his name is associated chiefly with his investigations of the Bunsen-Roscoe law, in which he showed that the time-intensity relation fails to apply to highly sensitive gelatino-bromide emulsions. The Schwarzschild formula, embodying his researches, has been applied in the measurement of the magnitude of stars and in sensitometric observations on dryplates. At the outbreak of the war he became an officer in the Landwehr, and saw active service on the western and eastern fronts, where he received the wounds which resulted in his death.

J. Gaedicke, dean of photographic journalists in Germany, and for many years proprietor and editor of the *Photographisches Wochenblatt*, died in May, 1916. He was eighty-one at the time of his death. He was the author of text-books on flashlight-photography, platinum-printing and other subjects.

A commercial personality in German photographic circles has been removed by the death of Carl Hackl, well known as the Berlin agent of the Belgian firm of Gevaert, and described in the obituary notice as director of a Gevaert business registered in Germany as a limited company. He was also head of a firm bearing his own name.

Jacob Husnik, of the well-known process-house of Husnik and Hänsler, Prague, died in February, 1916. He was the author of several text-books of photo-mechanical processes, in which branch of photography he was a pioneer. Collotype in particular was a process of which he may be said to have been the creator in commercial form.

Another well-known process-worker whose death is recorded is Carl Angerer, head of the Vienna firm of Angerer and Göschl. Angerer was a pioneer in reproduction-processes from about the year 1860, and the founder, 1873, of the firm by which his name was most widely known.

A Berlin expert in ferric copying-processes, Adolf Tellkampf, sustained wounds from a shell-explosion in the Belgian campaign in 1914 from which he died.

A writer who at one time contributed to British publications dealing with pictorial photography has died in the person of Ernst Juhl, of Hamburg, originally an electrical engineer, but in later life an assiduous collector of specimens of pictorial photography.

Other workers of photographic eminence are mentioned, and it is to be regretted that death should have caused the science of photography to lose so heavily.

Vivian Akers' Photographs

WE have recently seen a large collection of enlarged photographs of landscapes by Vivian Akers, painter-photographer, of Norway, Me., which possess unusual merit because the themes have been selected and treated from a painter's viewpoint. Thus, these pictures present the element of originality and, in most cases, are strikingly effective in the management of light and shade, and the single objects such as trees and boulders. As Mr. Akers was a pupil of the late John J. Enneking, he has acquired that artist's method of pictorial composition, having, indeed, used the very landscape-subjects, and, unless he has marked talent as a painter, Mr. Akers is likely to become more quickly and quite favorably known as a photo-pictorialist, for his approximately four hundred prints are copyrighted and systematically marketed through an agent. By the way, this method of handling meritorious photo-prints should appeal to those pictorialists desirous to increase their revenue. We hope to acquaint our readers with the pictorial character of Mr. Aker's photographs in an early issue of our magazine.

John A. Tennant Admitted to New York Bar

MANY of our readers will be glad to hear that the editor of *Photo-Miniature* has received the degree of Bachelor of Laws from the Fordham University, New York, and that he has been admitted recently to practise as an attorney and counselor-at-law of the Supreme Court of the State of New York. Mr. Tennant will continue to edit and publish *The Photo-Miniature* as formerly and with his accustomed success.

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Professional Photographers' Society of New York

THE thirteenth annual convention of this organization took place at Hotel McAlpin, New York City, February 26, 27 and 28. President E. L. Mix conducted the meetings, the chief features of which, in order, are as follows:

"Pop" Core initiated an "experience" meeting, in which Miss Stewart and McFarland, of Canandaigua; Loomis, of Elmira; Stone, of Hamilton; Loree, of Albany; McGeorge, of Buffalo; Smith, of Rochester, and Boice, of White Plains, participated.

Mamie Gerhard, one of the famous Gerhard Sisters, of St. Louis, talked on salesmanship, interestingly and instructively, and won enthusiastic approval. A continuation of E. B. Core's talks on experiences brought out good points from Zachariah, from far-off New Zealand; Crawford and Cunningham, of Hamilton; Miss Surdame, of Toronto; Mr. Buxbaum, of New York, and Mr. Abel, of Cleveland. A very fine exhibit of "Doré-types," by Mr. Buxbaum, was then inspected, and accorded well-deserved admiration. Mr. Parke, secretary of the Mohawk Society, gave many short cuts and formulæ of marked practical value. Mr. Mason, of the Bellevue Hospital, introduced by Mr. MacDonald as the oldest photographer in active harness, spoke of his numerous inventions, all of them used by him daily. Mr. Leatherdale, of Toronto, spoke of the great practical benefits derived from coöperative advertising. Mr. Shaw, of Meriden, Conn., condemned the custom of selling tickets. Mr. Spellman, of Detroit, praised the value of changing the display every week. Mr. Mock gave expert testimony of the value of fires.

The second day brought out talks, discussions and demonstrations of marked value. It was regarded as the greatest day in the history of the society. Miss May L. Smith, of Binghamton, and Clarence H. White, pictorialist, author, instructor, occupied the forenoon. After the mid-day luncheon came Dudley Hoyt, with a fascinating and instructive demonstration of his method of posing and lighting that has given him a place in the sun. Emme Gerhard showed what to do with a woman's hair, how patrons are approached and permanently won, and how the light-sources in her studio are used. She made another hit (the circuit), and St. Louis becomes another Mecca. Mr. Haley, he of a talented son, and Mr. Mock spoke in a humorous vein, and all thoughts of high prices and the war were dissipated. Mr. MacDonald talked on system, and around the deep impression he created linger the following epigrams:

"The value of a full stomach is far greater than any art."

"If you want to succeed, don't flirt with a brewery (distillery)."

"Don't work any more than you have to."

"Fill your appointment book for two weeks with names, then retire to a rear room and await results."

"If you want people to be confident of you, be confident of yourself."

"The real way to get rich is to be poor."

The evening recorded the usual banquet in the ballroom. A black band furnished the noise and, occasionally, even a little music, ably assisted by Pirie MacDonald, "Pop" Core, Mr. Zachariah and a few others. A prize, for all that is enviable, was presented to Emme Gerhard, who will probably add the pretty silver dish to her collection of trophies.

On the closing day Frank H. Cole, of Asbury Park, talked on efficiency, using his photo-finishing plant as an illustration. W. B. Poynter, of Cincinnati, demonstrated a flash-lamp of his invention, and showed corresponding negatives. Those of children evoked general admiration. Retiring President Mix received a valuable gold watch and chain as a mark of esteem of the P. P. S. of N. Y. He almost responded, the surprise was so great. Unable to find words, he said merely, "Thanks."

The newly elected officers are: president, F. E. Abbott, Little Falls; vice-president, J. E. Mock, Rochester; secretary, E. U. Smith, Honeoye Falls; treasurer, Edwin Park, Oneida.

The John Wanamaker Exhibition

MORE than eleven hundred pictures were submitted by two hundred and fifty workers at the recent Twelfth Annual Exhibition, John Wanamaker, Philadelphia. Fifty-five photographs were selected by the judges for special notice. The average quality of all the pictures submitted this year was superior to that of any former exhibition. The first prize ($100) was won by Paul Strand; the second ($50), by Leonard Westphalen; the third ($25), by John Paul Edwards; the fourth ($10), by B. F. Armiger; the fifth ($10), by Karl Struss; the sixth ($10), by Frank V. O'Connor; the seventh ($10), by W. G. Fitz; the eighth ($10), by Ernest P. Thurn; and ten $5 prizes were awarded to the following: M. V. Browning, L. F. Deming, John Paul Edwards, W. G. Fitz, H. Crowell Pepper, Karl Struss, Edward H. Weston (2), Leonard Westphalen and John Wray.

A. L. Coburn's Vortographs

CONSIDERABLE interest has been aroused in the London Camera Club by the exhibition of what their producer calls "vortographs;" and speculation is rife as to the method by which they have been produced. They are not representations of objects — at least they are not recognizable as such — but resemble more the mixed images seen when the eye is turned on cut glass, where various reflections overlap and mingle, and its facets and curves combine to give a medley of light and shade, sometimes with forms repeated and sometimes the reverse. We do not say that this is how they have been got, we do not profess to know; we only observe that this is what they look like. Their producer was to describe the means by which he has got them, on Thursday last, so that by the time this is in our readers' hands the mystery will be explained. Just what purpose they can serve it is hard to say. Some profess to see in them decorative patterns of wondrous beauty, while others avow that in the rooms of a camera club they should be turned to the wall. In the meantime they provide just that sensation and *réclame* in which Mr. Coburn delights, and we congratulate him both on having achieved his object and on furnishing a topic that to say the least is a fresh one.—*Photography.*

The Pittsburgh Salon

WE have received the catalog of the recent Fourth Annual Pittsburgh Salon of Photography, which is unusually interesting. Two hundred and eighty-three photographs were hung, and they represented many forms of artistic expression. Among many well-known photographers who hung their pictures at this Salon were the following: George Alexander, Philip McCutcheon Armstrong, Rupert Bridge, Will D. Brodhun, Katherine Brucherseifer, C. W. Christiansen, Dwight A. Davis, William S. Davis, Edwin G. Dunning, Louis Fleckenstein, John W. Gillies, Louis A. Goetz, Forman Hanna, R. S. Kauffman, T. W. Kilmer, Wm. Ebert Macnaughtan, W. H. Porterfield, W. H. Rabe, O. C. Reiter, D. J. Ruzicka, J. D. Strickler, Edward Henry Weston, Paul Wierum and William H. Zerbe.

XUM

WITH THE TRADE

New Diffusing-Stops

THE Wollensak Optical Company, of Rochester, New York, makers of the Verito Diffused-Focus lens, announce their introduction of a set of diffusing-stops for use with the Verito lens in enlarging.

Heretofore, in order to obtain enlargements that possess a pleasing quality of diffusion, it was necessary to make a series of exposures at different apertures, making it rather impractical for the average photographer, as it was not an easy matter to gauge the exposure, at the different apertures, necessary for the enlargement.

The new Wollensak diffusing-stops for the Verito eliminate the necessity of different exposures, and, by employing one of these stops, an enlargement with a rare quality of diffusion can be obtained. There is no other method, now in use, that will produce just this quality of diffusion.

There are three stops to the set, governing three different degrees of diffusion, so that the operator can use whichever one suits his fancy. The price is $7.50, which includes the adapting of these stops to the barrel of a new Verito, or of a Verito already in use. The manufacturers will be glad to send, to all interested, special literature concerning this new and interesting subject.

Success With Autochromes

HENRIETTE HUDSON, the autochromist *par excellence* of New York City, is having brilliant success with the delightful Lumière method of color-photography. Her autochromes have been admired by connoisseurs, and she is now making important plates for some of the leading publishers in America. Her latest achievement consists of a number of successful autochrome plates of the interior of the Cathedral of St. John the Divine, particularly the stained-glass windows, chancel and the choir of this remarkably beautiful structure.

The David Stern 1917 Catalog

WE have received the complete 1917 Catalog of the David Stern Company, of Chicago. It contains a very complete list of new and used photographic equipment, including up-to-date accessories. The lenses, cameras and other goods listed are of standard manufacture, and the greatest care is taken to see that each article is in perfect condition. According to their published guaranty, all goods purchased from the David Stern Company are sold subject to the approval of the customer; a ten-day trial is extended in every case, and the purchase-price is refunded promptly if the goods are unsatisfactory. Amateur and professional photographers, eager to practise economy, should write to the company for a copy of this interesting catalog.

The Maryland Photo-Stock Company

WE are glad to hear that the Maryland Photo-Stock Company, of Baltimore, Md., has moved to the southeast corner of Saratoga Street and Park Avenue, Baltimore. This new location affords greater opportunities for business expansion and better service to customers. Without a doubt, the success attained at the old location will continue unabated at the new one.

A New Artatone Pamphlet

ANOTHER attractive addition to Artatone literature has just been issued by the International Photo-Sales Corporation, 9 East 40th Street, New York City. The new pamphlet is interesting and authoritative, and essential to the correct understanding of Artatone manipulation. It is the intention of the distributors not only to do Artatone printing and enlarging, but to sell the paper as well. Amateur and professional photographers should write for the pamphlet, and photographic dealers should consider the advisability of carrying Artatone in stock.

Ralph L. Fuller Company Sales Agents for Kathol

WE are informed by the Kathol Manufacturing Company that it has appointed the Ralph L. Fuller Company, 2 Rector Street, New York City, as exclusive sales agents for Kathol. The increased facilities thus obtained to market this excellent developer will result in greater distribution and improved service to consumers.

W. Butcher and Sons, Ltd., Agents for Wollensak Lenses

WE learn that the well-known English firm, W. Butcher and Sons, Ltd., has lately been appointed sole agent in Great Britain for the lenses and shutters manufactured by the Wollensak Optical Company, of Rochester. Without a doubt, this new-formed relationship will prove to be of great advantage to the consumers and to the manufacturers.

National War-Loan and Kodak, Ltd.

KODAK, Limited, has subscribed £150,000 to the National War-Loan, two-thirds of the amount being new money. The firm and its associated companies in Europe have now invested more than one and a quarter million sterling in the War-Loans of the Allies.

British Journal of Photography.

A Word to the Wise

THE photographic season of 1917 is at hand. During the next few weeks amateur and professional photographers will prepare themselves for their summer work. *Now is the time* for photographic manufacturers and dealers to acquaint the photographic public with the goods to be placed on sale. The months of May and June are the most important of the entire photographic year. This fact should be reason enough to advertise, and to do it now.

Queer Logic

"I WILL stop advertising; that will decrease my expenses."

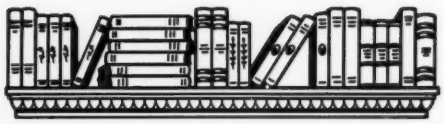
"I will reduce wages; that will increase my profits."

"Then I will cut prices; that will put me ahead of my competitors."

Hush! Don't wake him up.

Professional Photographer.

XUM



BOOK-REVIEWS

Books reviewed in this magazine, or any others our readers may desire, will be furnished by us at the lowest market-prices. Send for our list of approved books.

THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC, 1917. Edited by George E. Brown, F.I.C. Numerous illustrations. Price, 50 cents; cloth, $1.00; postage extra, according to zone. New York, U. S. A.: George Murphy, Inc., 57 East Ninth Street, general sales agent.

Again we welcome the appearance of the bible of photography. We admire the courage and tenacity of purpose which characterize the publishers, who, despite the war, continue to produce this valuable photographic annual. In view of existing conditions, the 1917 British Journal is remarkable in point of size, reading-matter and advertisements.

The text includes helpful formulæ, standard tabular matter and the ever-interesting "Epitome of Progress," with its quotations from most of the leading photo-journals of the world.

This year "Chemical Notions for Photographers," written by the editor, is a paper of unusual value and interest to amateur and professional photographers. As always, the advertisements are attractive and instructive. British camera-manufacturers have much to offer the photographic world.

Copyrights, Trade-Marks and Patents

To the Editor of PHOTO-ERA.

Sir:

Some time ago a reader of your magazine wrote me asking me to secure a Copyright on his Trade-Mark. I have had the same inquiry any number of times.

In view of the error, which is an excusable one, I wish to point out broadly the differences between Trade-Marks, Copyrights, Designs, Patents and Mechanical Patents.

The statutory fee for registration of any work, except a photograph, is one dollar, including a certificate of registration under Seal. In the case of a *photograph*, if a certificate is not demanded the fee is *fifty cents*. The life of the copyright is twenty-eight years, and it may be renewed at its expiration for twenty-eight years more. Applicants for copyright registration should use the application forms furnished on request by the Copyright Office.

A trade-mark may be registered by filing an application in the United States Patent-Office. A trade-mark is a peculiar distinguishing mark or device affixed by a manufacturer or merchant to his goods. It is a commercial signature, and the purpose of the trade-mark is to guarantee the genuineness of the product. The term of the registration of the trade-mark is twenty years, the Government fee $10, and the mark may be renewed. If anticipated, registration is of course refused.

A design-patent is secured by filing an application in the Patent-Office for a new and ornamental design. To secure a design-patent, invention must be involved, although this is not essential to the validity of a copyright or trade-mark. If not anticipated, the inventor secures a design-patent for a period of three and one-half years, seven or fifteen years, upon the payment of a Government fee of $10, $15 or $30 respectively.

A "mechanical" patent may be procured by filing an application in the Patent-Office for any new and useful art, machine, manufacture or composition of matter, or improvement thereof. Invention must be involved. Patent is issued for a term of seventeen years and the Government fees are $35.

A print is a device used for advertising-purposes, and is not attached to the goods, whereas a label is a device to designate the contents of a product, to which it is attached. Both are recorded without search in the Patent-Office upon a Government fee of $6.

It is highly advisable that the services of a skilled patent-attorney should be retained to secure protection of these very valuable pieces of personal property. For instance, vast property-rights are based on trade-marks. It is said that each letter in the word "Uneeda" is worth a million dollars, and the value of such trade-marks as "Coca-Cola," "Royal" Baking-Powder, "Sapolio," "Bon Ami," "Kodak," "His Master's Voice" with the symbol of a dog, and many others are well known. The rivalry of competing manufacturers is so keen, the value of a trade-mark is so great, and because the practice of registering a trade-mark in the Patent-Office is so technical, it is always advisable to secure the services of a competent attorney.

Before entering the practice of Patent and Trade-Mark Laws, the writer was an Assistant Examiner of Patents and Assistant Examiner of Trade-Marks in the U. S. Patent-Office. There, many hundreds of applications, both Trade-Mark and Patent, were examined by me, and I can say that in a great majority of cases the applicants were represented by attorneys. Those cases wherein the applicant prosecuted his case became hopelessly confused and his entire rights were jeopardized. The old adage, "He who is his own attorney has a fool for a client," was never more applicable than in Trade-Mark and Patent cases.

I trust that this elucidation will be helpful to your readers.

NORMAN T. WHITAKER.

Washington, February 28, 1917.

Writing on the Back of Prints

WHY photographers persist in writing on the back of photographic prints so that it shows through on the face, is a mystery. It is best to write carefully with a soft lead-pencil, not bearing on hard — even a fountain pen will do — on a place that corresponds with a very deep shadow in the picture. But to use a hard pencil, bearing down hard — and back of the sky or a large highlight, at that — spoils the print. For the purpose of halftoning, such a print is wellnigh worthless.

Our "Miscellaneous" Quarterly Competition

MANY workers occasionally produce pictures of exceptional merit and interest which do not seem to fit any classified subject in the PHOTO-ERA monthly competitions as announced from month to month. Such pictures may be entered in the competition for miscellaneous subjects to be held quarterly, beginning with February, 1917.

The rules, including the award of prizes, that govern the regular PHOTO-ERA competitions for advanced workers will apply to these quarterly competitions. It should be borne in mind that pictures offered elsewhere and rejected may not be suitable.

RECENT PHOTO-PATENTS

Reported by NORMAN T. WHITAKER

Charles Raleigh and William V. D. Kelly, of Brooklyn, N. Y., have invented a method of Producing Colored Photographic Pictures, bearing patent No. 1,217,425. The inventor claims the method of recording color-values which consists in exposing the same panchromatic emulsion to both colored and substantially white light. The patentees have assigned their rights, by mesne assignments, to Prizma, Incorporated, a corporation of Virginia.

A Focusing-Attachment for Cameras has been patented as No. 1,217,728, by William Ehrlich, of New York, N. Y.

Charles F. Speidel, of Rochester, N. Y., has recently been issued a patent, No. 1,217,653, on a Camera-Back. Mr. Speidel has assigned his rights to the Eastman Kodak Company, of Rochester, N. Y.

Patent No. 1,215,534, for a Film-Magazine for Kinematograph or Motion-Picture Cameras, has been granted to Albert S. Howell, of Chicago, Ill. The gist of the inventor's claims is as follows: A film-magazine for kinematographic cameras comprising a suitable compartment for the reception of film, and provided with an opening for the passage of film, means for closing said opening, comprising a strip of material adapted to be moved across said opening, a device within said magazine for moving said strip, and an element actuated by the camera door adapted to move said device. The inventor has assigned his rights to the Bell & Howell Company, of Chicago, Ill., a corporation of Illinois.

A Method of Producing Kinematographic Films has been patented as No. 1,216,026, by Hartwell W. Webb, of Cresskill, N. J. The inventor claims, as his invention, the following: The herein-described process of producing printed kinematographic films and the like, which consists in, first, taking on a continuous strip a row of negative pictures representing successive phases of motion of an object; second, cutting this strip into sections and placing the latter side by side so that the first picture of each row represents the phase of motion following the one represented by the last picture of the preceding row; third, producing from the negative so arranged a printing-plate; fourth, making an impression from the said printing-plate upon a sheet; fifth, folding the sheet into cylindrical form and joining the overlapping transverse edges in a manner that the pictures are caused to run in succession and in a helical line, and, finally, forming by a cut running in a helical line a band from said sheet.

Patent No. 1,215,412 has been granted to William A. Riddell, of Rochester, N. Y., on a Folding-Camera Bed. Mr. Riddell has assigned his rights to the Eastman Kodak Company, of Rochester, N. Y.

Robert John, of New York, N. Y., has been granted a patent, No. 1,216,696, on Photographic Lighting. Patent rights have been assigned to the Iconochrome Company, of America, Inc., a corporation of New York.

A patent, No. 1,216,493, on Color-Photography for Films or the like, has been issued to Charles Raleigh, of Jersey City, N. J., and William V. D. Kelly, of Brooklyn, N. Y. What they claim is substantially as follows: 1. A composite photographic image having a color-selective value and non-selective values. 2. A composite photographic image having overlying selective and non-selective color-value impressions (Claims 3 to 10 not printed). Patent rights have been assigned to Prizma, Incorporated, a corporation of Virginia.

A Photographic Developing-Apparatus has been invented by John S. Greene, of Rochester, N. Y. The number of the patent being 1,216,440, which has been assigned to the Commercial Camera Company, of Rochester, N. Y., a corporation of Rhode Island.

A patent, No. 1,216,948, on a Stereoscopic Device or the like, has been granted to Louis Joseph Emmanuel Colardeau and Jules Richard, of Paris, France.

A Photographic Printing-Apparatus has been invented by William C. Huebner, of Buffalo. Patentee has assigned his rights to the Huebner-Bleistein Patents Company, of Buffalo, N. Y. The number of the patent is 1,216,318.

Kodak Bromide Pictures

A COPY of the long-heralded book — or, rather, brochure — published by Kodak, Limited, London, under the title of "Kodak Bromide Pictures, By Some Who Make Them," has been received by PHOTO-ERA. It comes up fully to expectations, as mentioned by the Cadbys several times in their "London Letter," and, moreover, is a credit to the enterprise and discriminating taste of its publishers. The pamphlet is devoted to the varied uses of Bromide paper as explained and illustrated by contributing master-photographers of international reputation; viz., F. J. Mortimer, editor of the *Amateur Photographer*; Furley Lewis; C. F. Inston; Will Cadby; W. Thomas, and A. H. Blake, preceded by a preface, sketches of the contributors and a generous introduction from the pen of Mr. W. L. F. Wastell, distinguished as photographer and the entertaining and ever-cheerful writer, "The Walrus," in *Photography and Focus*. The concluding fifteen pages of the work contain lists of the various grades of Kodak Bromide Papers, working-instructions and formulæ.

In their articles, the authors explain, in simple detail, how they produce Bromide prints of high photographic quality, giving their own methods of working, individual tricks and dodges, keeping back nothing, even though they may not always agree with the publishers.

The illustrations are twelve full-page halftones and veritable masterpieces as follows: "The Elements of War" and "The Vigil" (stirring war-marines), F. J. Mortimer; two portraits, by Furley Lewis; "The Dock" and "Home to Dinner," C. F. Inston; "Child Portrait" and "April-Snow," by Will Cadby; "The Old Fishwife," by W. Thomas; "Sunlight on White-wash" and "The Embankment at Night," by A. H. Blake. Persons interested to obtain copies, for which no charge is made, are invited to address the publishers, London.

Cleaning Measure-Glasses

FOR cleaning graduates which have become stained in use, go to the pantry and get the vinegar bottle; pour some into the graduate and also add a small quantity of coal-dust — say a tablespoonful. Wash the graduate well with the above solution, allowing the small coal to swill round the inside with the vinegar. I have found that this is a quick and effective way to clean the graduate when the commercial hydrochloric acid usually recommended is not to hand.

The Amateur Photographer.

LONDON LETTER

THE Postal Censorship has been considerably tightened lately, and this is our first letter to PHOTO-ERA under the new regulations. They necessitate a permit from the Chief Postal Censor, "To despatch by post, manuscripts to the Boston, U. S. A., photographic magazine called PHOTO-ERA." Postal packets sent under this permit are addressed and stamped in the usual manner, but are enclosed in an outer cover and addressed to the Chief Postal Censor, Strand-House, London.

In the midst of the most distressing and probably final phase of the great war — when we stay-at-homes are harrowed by the ghastly accounts of indiscriminate slaughter of noncombatants at sea — it is something of a relief to turn to "Vortographs." They seem to suggest the quintessence of peace — the attempt to escape from the dreary monotony of a dull craft in which there is nothing doing. And yet this dilettante-movement is born in the very crisis of the greatest war of all times — verily, a calm in the exact center of the storm. The reader will be wondering what "vortographs" are although the word may give the clue to those who are familiar with the principles of vorticism as set forth by Wyndham Lewis, Ezra Pound and Gaudier-Brzeska. "Vortographs" are photographs taken with the vortoscope, which, we are told, was invented late in 1916, presumably by Mr. Alvin Langdon Coburn, who had long wished to bring cubism or vorticism into photography. They are abstract pictures — that is to say, it is impossible to tell whether they are landscapes or portraits. An exhibition has just been opened at the Camera-Club of "vortographs." It also includes some post-impressionist paintings; but we may ignore these, as they do not immediately concern this letter. All the exhibits are by Mr. Coburn.

To give an idea of these pictures, we cannot do better than to quote a few sentences from the anonymous forewords to the catalog. The discussion at the opening — in which Mr. Pound joined — revealed virtually that he was the author:

"The vortoscope is useless to a man who cannot recognize a beautiful arrangement of forms on a surface, when his vortoscope has brought them to focus. . . . The modern will enjoy 'vortograph' No. 3, not because it reminds him of a shell bursting on a hillside, but because the arrangements of form please him, as a phrase of Chopin might please him. . . . 'Vortography' stands infinitely above photography in that the 'vortographer' combines his forms *at will*."

Mr. George Bernard Shaw, who was at the opening of the show, declared that these "vortographs" gave him a very pleasant sensation. He was not sure why he liked them; but he thought that the quality of the prints had something to do with it. Mr. Coburn in his paper referred to the intense pleasure derived in making a "vortograph." It was the most enthralling form of art-expression he had ever indulged in, and, he added, that making a "vortograph" was like taking a journey into a strange and beautiful land. Here we feel that we are on firm and understandable ground. We are told that all the examples were done in two or three rooms. With the present difficulties of foreign travel, and the fifty percent rise in home-railway fares — well, the thing is economic, to say the least of it! We are recorders, not critics, and only lack of space prevents the chronicling of many more interesting facts concerning these "vortographs." But we may let out the secret that Mr. Coburn proposes to return to the United States, shortly, and he will then organize "vortograph" exhibitions in New York and Boston, and thus our readers will have the opportunity to judge for themselves the merits of the new movement.

The new English one-pound notes — five dollars — have a particular interest for photographers in that, for the first time, the Treasury and Somerset House have been bold enough to employ one of the most up-to-date photographic processes for the main features of the notes. They are about the same size as the old ones — over which there were occasional scares as to possible forgery — but across the center of the new notes is a band of design connecting an effigy of St. George and the Dragon on the left with a medallion of His Majesty the King on the right. The medallion and the St. George picture are the work of Mr. Bertram McKennall, M.V.D., A.R.A., and the whole of his design is reproduced in photogravure — a process, we believe, that has never before been used for bank-notes, though it has been used with a certain amount of success for postage-stamps in Bavaria. The photogravure-design is complicated by a protective overprint in green and purple, so contrived that any attempt to separate photographically the main design from the overprint will be baffled by the combination of colors. At present, photographic science cannot screen off these three colors — photographic brown, green, and purple — so as to separate the prints in each color. Herein lies one of the chief elements of security against the illicit reproduction of the notes.

At last, the British public has been given a glimpse of the much-talked-of "tanks"— "His Majesty's Land Ships"— in battle-array. The latest film of the Battle of the Ancre shows — among many other sights of interest — close-up views of these wonderful new engines of destruction. We see them raging across "No Man's Land," tearing up barbed-wire entanglements and surmounting any other obstructions, while their guns are trained on the enemy-trenches. This last film is certainly the most realistic. One comes away from the Kinema with the feeling that he has really paid a visit to the front.

We have but scant space left in which to describe the little book just published by Kodak, Ltd., called "Kodak Bromide Pictures, By Some Who Make Them." In it six photographers have written articles on how they make their bromide prints, and there are two illustrations — exhibition pictures — of each man's work. As their methods and results vary extensively, from the lightest of snow-scenes to the strongest of portraits, the book forms an interesting collection of illustrated thoughts and ideas, and indicates clearly how those who wish may follow. There is an introduction by Mr. W. L. F. Wastell, who is distinguished alike as a photographer and as the author of those humorous pages which appear week by week in *Photography and Focus* over his pseudonym "The Walrus."

No expense or trouble has been spared in the make-up of the book, and we have never seen half-tone plates to rival the reproductions. We speak with experience, for one of the present writers contributed an article to the Kodak book, and he well knows the difficulty — the almost impossibility — to reproduce the excessively light work for which he is generally responsible. Kodak, Ltd., has reproduced the originals, in this case, with remarkable fidelity and success. The new booklet "Kodak Bromide Pictures" is being distributed lavishly in this country, and certainly it will be treasured by many. We have had a copy sent to the Editor, who may wish to form his own opinion concerning it.

CARINE AND WILL CADBY.

XUM

Copying Lantern-Slides

A LANTERN-SLIDE, if it is good as a slide, does not copy at all well. The lighter tones are almost sure to be missing, although it has been said that they can be obtained by projecting the slide onto a good screen and photographing the picture on the screen. If this is not to be done it will be found that the best method to make a fresh negative from a lantern-slide is to illuminate it by reflected daylight and photograph it on an ordinary plate. If the slide is a warm-toned one then an orthochromatic plate should be used. Smooth white blotting-paper makes the best reflector, and to prevent stray light from veiling the negative the slide should be placed over an opening in a sheet or card in front of the reflector, the opening in the card being slightly larger than the opening in the mask.—*Photography.*

Assistant Photographer, Reclamation Service (Male). United States Civil-Service Examination

THE United States Civil Service Commission announces an open competitive examination for assistant photographer, Reclamation Service, for men only, on April 18, 1917, at the places mentioned in the list obtainable from Civil Service Commission or postmaster. A vacancy in Washington, D. C., at $1,020 a year, and future vacancies requiring similar qualifications, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer or promotion. The duties of this position will be mainly those enumerated in the paragraph below as prerequisites for this position. Competitors will be examined in the following subjects, which will have the relative weights indicated:

Subjects	*Weights*
1. General principles (including view photography, chemical manipulations, printing, toning, developing and redeveloping)	40
2. Bromide enlargements, lantern-slides, transparencies	30
3. Training and experience	30
Total	100

Applicants must have actual commercial experience in view-photography, bromide-enlarging, making good scenic lantern-slides, copying on dryplates, including color-copying with screens, preparation of developers, chemical baths and mixtures used in darkroom work, making transparencies on plates and celluloid-films, printing gas-light papers, toning, redeveloping, and some flash-light and portrait-work. A fairly detailed statement as to the amount of above experience should be included in the application. Statements as to training and experience are accepted subject to verification. Applicants must have reached their twentieth birthday on the date of the examination. Applicants may be examined at any place at which this examination is held, regardless of their place of residence; but those desiring appointment to the apportioned service in Washington, D. C., must be examined in the State or Territory in which they reside and have been actually domiciled in such State or Territory for at least one year previous to the examination, and must have the county officer's certificate in the application form executed. No sample questions of this examination will be furnished. Applicants must submit to the examiner on the day of the examination their photographs, taken within two years, securely pasted in the space provided on the admission cards sent them after their applications are filed. Tintypes or proofs will not be accepted. This examination is open to all male citizens of the United States who meet the requirements. Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C., or to the secretary of the United States Civil Service Board at any place mentioned in the list printed hereon. Applications should be properly executed, excluding the medical certificate, and filed with the Commission at Washington in time to arrange for the examination at the place selected by the applicant. The exact title of the examination as given at the head of this announcement should be stated in the application form.— *Issued March 9, 1917.*

The Best Book on Retouching

MOST of the books that treat on retouching and working on the negatives, with the intention to improve them, are very incomplete and unsatisfactory. Everybody interested has been looking for the ideal book on this important subject, and, considering the opinions expressed by expert professional photographers, PHOTO-ERA takes pleasure in recommending, to professionals as well as to amateurs, the best book on this subject printed in the English language. We refer to the work, "A Complete Treatise on Artistic Retouching, Modeling and Etching," by Clara Weisman — an expert retoucher and, for many years, the head of the retouching-department of one of the largest photographic establishments in this country. The author is by training, experience and temperament well-fitted to treat so difficult a subject as retouching; and admirably, indeed, has she performed her task. Not only does she set forth, at once clear and concise, the principles of sane retouching and their application, but how to avoid the common error of spoiling a likeness and its anatomical aspect by senseless manipulations. She demonstrates the importance of truth in modeling the human face, and illustrates by means of examples the danger of falsifying the results of the lens. On the other hand, there are numerous delightful illustrations of genre and portrait-photography, exemplifying the best principles of the retouching-art which make for the artistic blending of truth and ideality. The author also illustrates how successfully an expression of gloom may be converted into one of happiness, and how other modifications on the negative may be effected by skilful use of pencil and etching-knife, urging only such technical manipulations as may be successfully practised by the retoucher of average ability, her one thought being the attainment of supremely artistic results by easy and sensible methods.

Although the author is a practical artist and a recognized authority in her specialty, she supports her advice with references to well-known art-principles, thus imparting to her words greater value and force. The closing chapter, "Style and Individuality," reveals the author's familiarity with the works of the great painters, and worthily terminates a volume that should be in the hands of every practical worker — professional or amateur. We accord it our heartiest endorsement.

The book is fully illustrated and only a few copies are left. It was published at $2.50, but will soon be out of print. Copies will be sent by the publisher of PHOTO-ERA on receipt of $2.00 each.

Photographer —"Why did you tell my wife what time I came in this morning, after I expressly told you not to?"

The Cook —"Sure, Oi did n't tell her. She asked me what toime ye got in an' Oi told her Oi was so busy gettin' the breakfast that Oi did n't look at the clock."
Town Topics.

Photo by C. L. Oswald

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